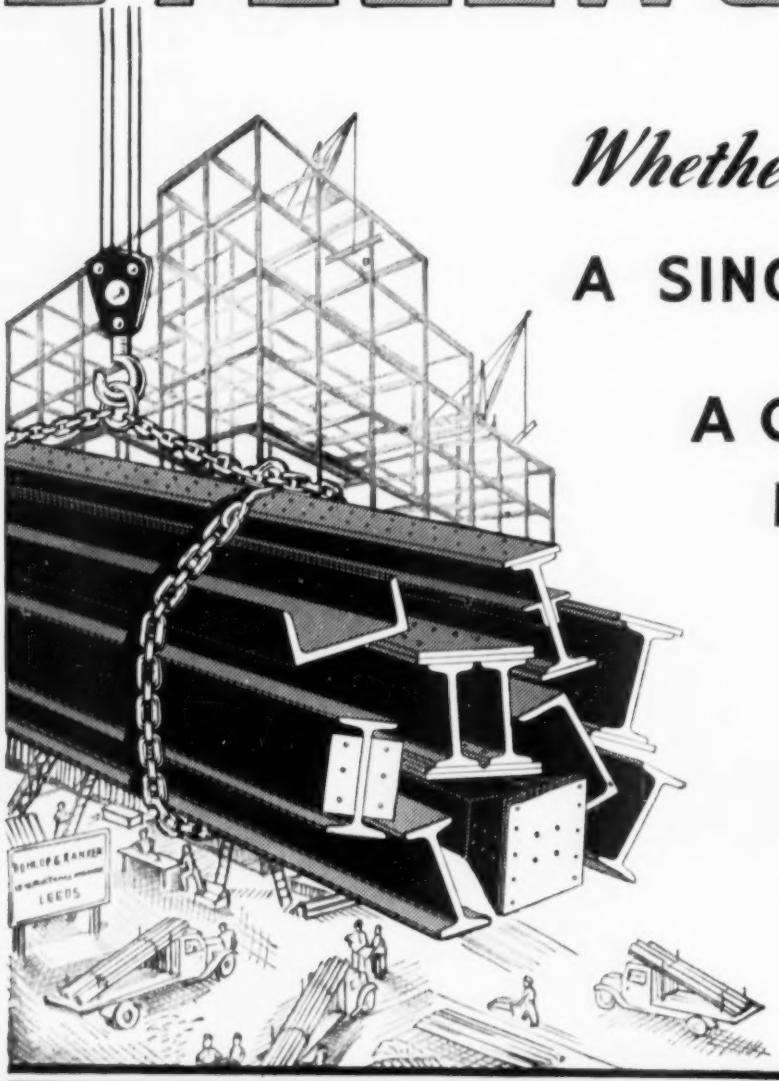
THE ARCHITECT & BUILDING NEWS

PUBLISHED IN LONDON SINCE 1854

1 JULY 1954 · VOL. 206 · NO. 1 · ONE SHILLING WEEKLY

- NEW PRESTRESSED CONCRETE STRUCTURE AT WORTHING TECHNICAL SCHOOL
- RECONSTRUCTION IN WEST GERMANY—III

STEELWORK



Whether you want

A SINGLE JOIST
OR
A COMPLETE
BUILDING

Try

D&R
STEELWORK
SERVICE

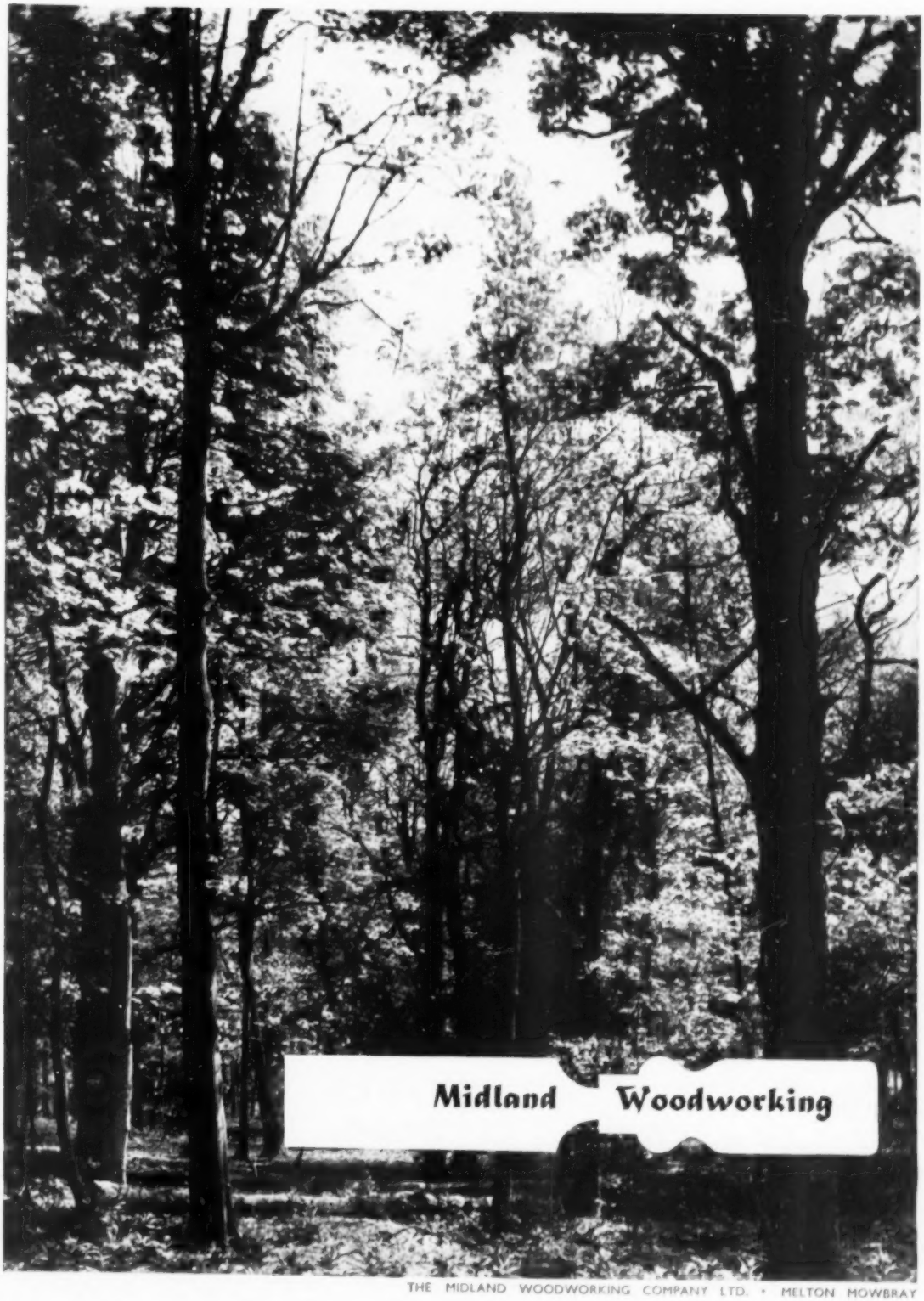
DUNLOP & RANKEN LTD

CONSTRUCTIONAL ENGINEERS
IRON & STEEL STOCKHOLDERS

TELEPHONE
27301 (20 LINES)

LEEDS

TELEGRAMS
"SECTIONS LEEDS"



THE MIDLAND WOODWORKING COMPANY LTD. • MELTON MOWBRAY

Specialists in high-class joinery for the Building Trade

After the disastrous fire in 1212 KING JOHN issued an ordinance in which the following appeared—

"All shops on the Thames be whitewashed and plastered within and without. All houses which can be plastered let them be plastered within eight days . . . those that will not be plastered in that term be demolished."

FIRE

what is the menace?

A building may be inconvenient, ugly, noisy or unhealthy, without being more than a nuisance to its occupants — BUT IF IT IS A FIRE-TRAP, IT IS A PUBLIC MENACE.

which is the best wall lining?

"Plaster, being made of sand and calcium sulphate is incombustible and highly fire-resisting as a material. When it is reinforced and thereby held in position by wood laths, or better still by metal mesh, its resistance is valuable... Fire has been known to rage fiercely for a time in the flue-like spaces inside a stud partition while the plastered faces remained intact." From 'Fires in Buildings — the behaviour of materials in fire' by Bird & Docking.

why is Gypsum plaster the best?

FIRE RESISTANCE. "MURITE" Plasters when set revert to Gypsum. This mineral contains 20% of chemically combined water which must be driven off before dangerous temperatures can be reached. This water barrier is one of the reasons why 'MURITE' Gypsum Plasters have such excellent fire-resisting properties.

GYPSUM PLASTER

QUITE INCOMBUSTIBLE
FULLY FIRE RESISTING

GYPSUM PLASTER & CEMENT

CAFFERATA & CO. LTD.

NEWARK-UPON-TRENT, NOTTS.

TELEPHONE: NEWARK 2060 TELEGRAMS: "CAFFERATA, NEWARK".

The house with the roof built first

Impossible of course . . . . . The house we are thinking of was built in the more usual way from the foundations upwards, and *built to a price.* One of the builder's *first* actions was to order sufficient NURALITE for all the flashings and weatherings, saving £15 from the start.

NURALITE is the new non-metallic, flexible sheeting with which flat roofs, guttering, ridging, flashing, etc., can be made at a fraction of the cost of sheet metal.

Note these points:—Composed of Asbestos and Bitumen—permanently weatherproof—easily cut with tinsmiths' shears—rigid when cold but mouldable to any shape after gently warming with a blowlamp—sheets can be welded to give a strong, impermeable joint—**fire resistant qualities satisfy the requirements of Model Bye Law 49.**

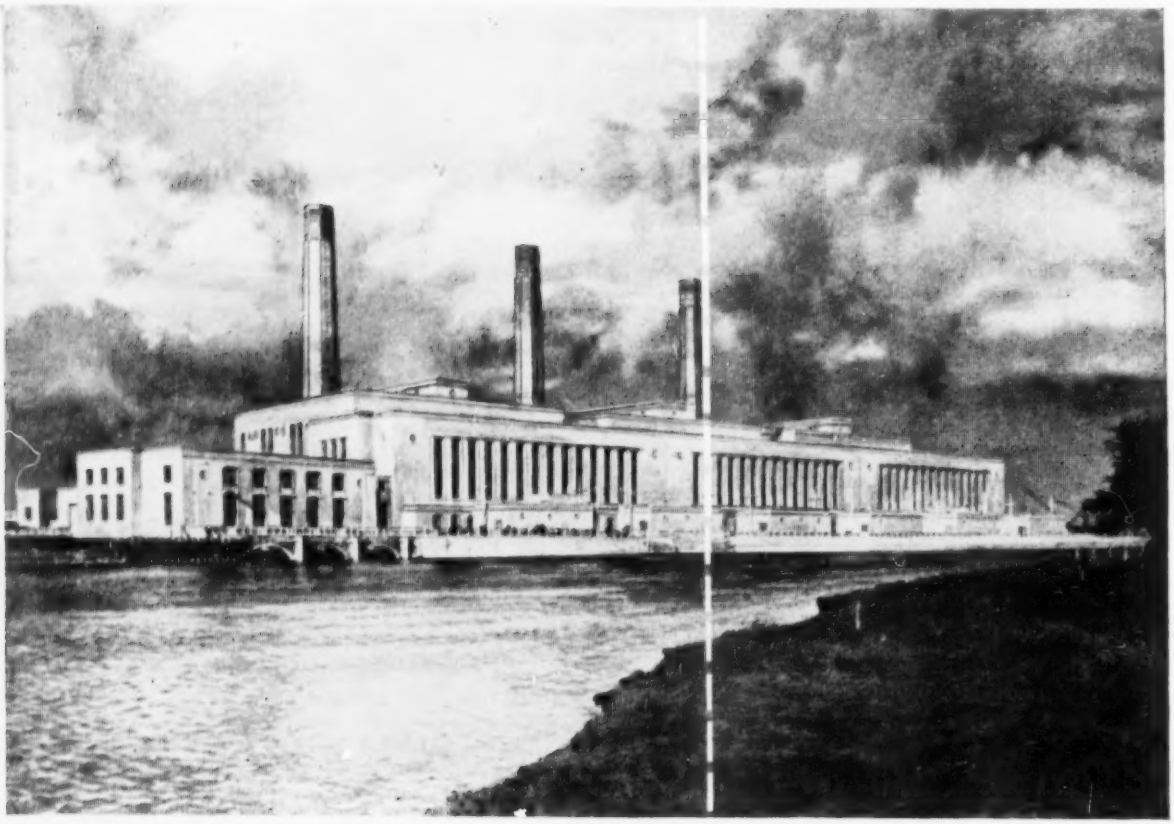
Nuralite

Regd. Trade Mark

SUPERSEDES ROOFING METALS

NURALITE SALES LTD, 3-4 Whitehall Place, Gravesend, Kent. 'Phone; Gravesend 4911 (6 lines) Wires; Nuralite, Gravesend

TAS/NL17



STAYTHORPE POWER STATION

By courtesy of The British Electricity Authority

Engineers and Main Contractors:
Messrs. Balfour, Beatty & Co. Ltd.

Consulting Architects: *Messrs. Cecil Howitt & Partners*

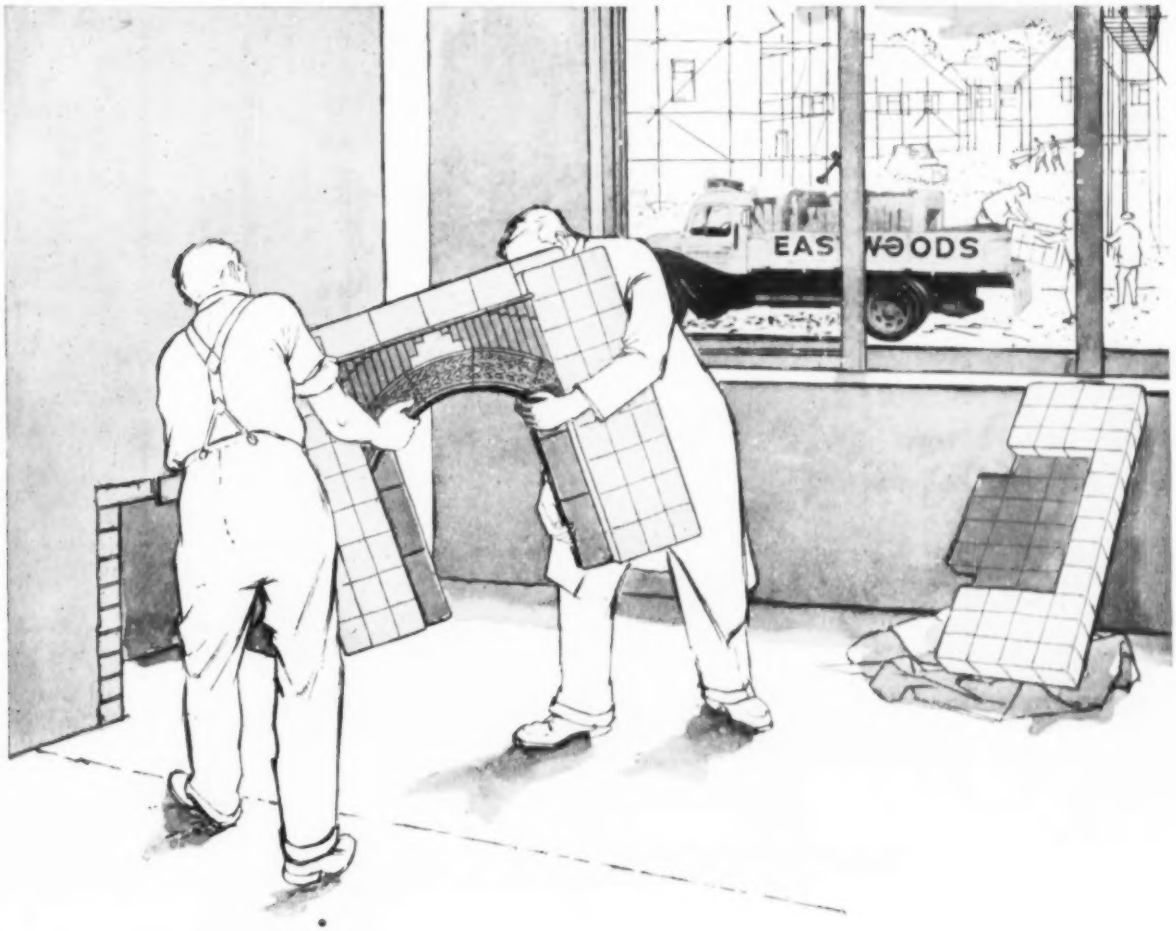
FRANKIPILES

THE FRANKI COMPRESSED PILE COMPANY LIMITED
39 VICTORIA STREET LONDON S.W.1
Telephone: Abbey 6006-9 · Telegrams: Frankipile, Sowest London
And in AUSTRALASIA · B. W. INDIES · RHODESIA · S. AFRICA

FRANKI (Driven) Piles
FORUM (Bored) Piles
MIGA (Jacked) Piles
R. C. Foundations

AND WE HOLD THE JOB UP

JW



EASTWOODS manufacture and supply fireplaces

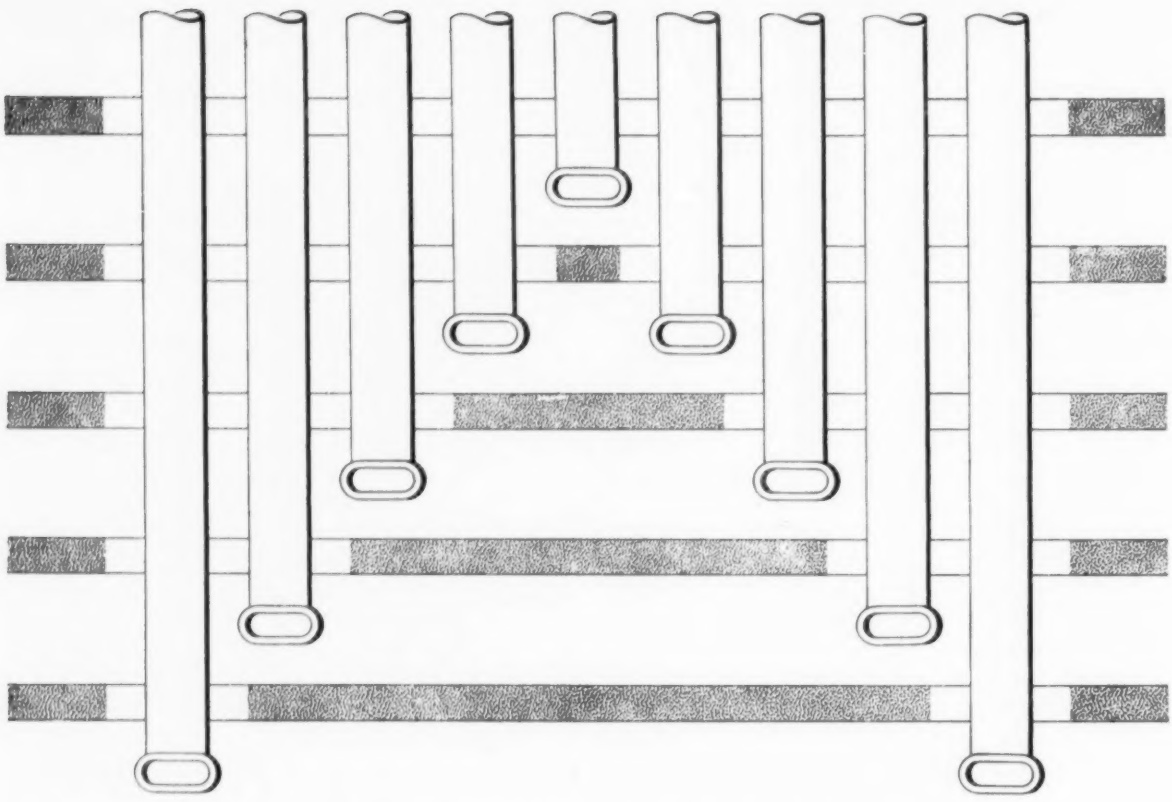
A part of the Eastwoods Organisation is devoted to the manufacture of tile fireplaces and surrounds. This Division produces a standard range of some 22 designs which meet all normal requirements of size and design for dwelling houses. Architects and Contractors can, therefore, look to Eastwoods to supply all the fireplaces required for housing projects, while Builders can call on their own Eastwoods Depot to supply fireplaces for either single new houses or for modernisation of existing dwellings. In addition to the manufacture of these standard designs Eastwoods also offer Architects manufacturing resources for the production of fireplaces to their own special designs. A broadsheet is available on request which illustrates and identifies all the fireplaces within the standard range. Your nearest Eastwoods Depot or Head Office will send it to you. They will also be very happy to discuss the production of special designs.

ONLY THE FINEST QUALITY MOTTLED GLAZED TILES ARE USED
CONCRETE IS WELL REINFORCED WITH MILD STEEL OF ADEQUATE SECTION
CEMENT FONDU IS USED EXCLUSIVELY • SKILLED CRAFTSMEN ONLY ARE EMPLOYED

EASTWOODS SALES LIMITED

Head Office: Eastwood House, City Road, London, E.C.1. Tel.: CLErkenwell 2040 (30 lines)

FIREPLACE DEPARTMENT: NORMAN ROAD · GREENWICH



20th CENTURY FLUES

Tall blocks of flats are already an accepted feature of Britain's urban skyline. There will be more of them, since the economics of modern housing allow the authorities little choice. With tall flats come big problems for the designer of heat services, anxious to satisfy authority's demand for economy and the dweller's wish to control his own fuel bill. On the important question of flue design for tall buildings the Gas Industry has accumulated much information and done much research. Architects and builders occupied, or likely to be occupied, with plans for flat blocks over six storeys high are invited to make full and free use of the results of this work, either by personal call at the Area Gas Board or by using the form below.

Heat Service

The Gas Industry will be glad to discuss with you the question of heat services and flues. If you have a specific problem, please write in detail. Alternatively, you can use this coupon. In either case, your inquiry should be addressed **to your Area Gas Board or to the Gas Council, 1 Grosvenor Place, London, S.W.1.**

I/We would like to receive the latest information on flue design.

NAME .....

.....

ADDRESS .....

.....67

*The Gas Industry makes the **fullest** use of the nation's coal.*

GC.G11.

S B K
EST. 1887
JOINERY
WINDOWS OF ALL TYPES
DOORS & DOOR FRAMES
GATES · KITCHEN UNITS
STAIRS & ALL JOINERY
With one of the largest Joinery Organisations in the Country at your disposal, backed by over 60 years' solid experience, you will readily appreciate the many advantages to be gained by specifying S.B.K. Joinery. We are in a position to give unrivalled service for the supply of quality woodwork.

SHARP BROS. & KNIGHT LTD

Head Office and Works : BURTON-ON-TRENT.
Telephone : Burton 4651.

London Office : Lion House, Red Lion Street, Richmond, Surrey.
Telephone RIChmond 0165.

RELIABLE IN PERFORMANCE

QUIET IN OPERATION

LOW POWER CONSUMPTION

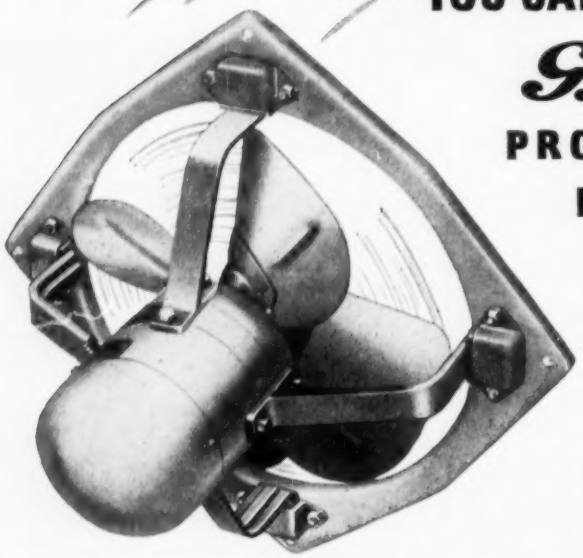
EFFICIENT AIR MOVEMENT

IN USE ALL OVER THE WORLD

YOU CAN *DEPEND* ON

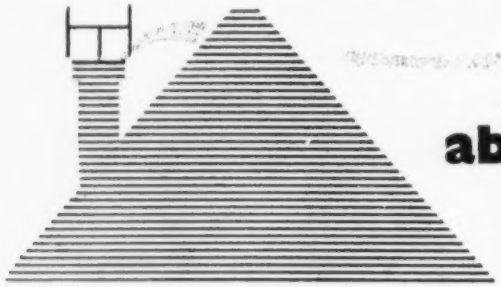
G.E.C.

PROPELLER FANS



The range of G.E.C. Propeller Fans is varied and comprehensive. This 12" model displaces air more quietly and at less cost than fans with narrow or flat blades. Air movement 1120 c.f.m. at 1350 r.p.m. For full details send for publication V968.

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2



above and below . .

PLASPHALT AND BITITE
BITROL BITUMEN SOLUTION
PLASBESTOS BITUMEN EMULSION
COLADE BITUMEN EMULSION
WATERPROOFER P. B. 7

. . from roof to damp-course, there is a Dussek Bitumen product to protect vulnerable points from damp penetration. Pamphlets detailing the Dussek range and its applications, will be forwarded on request to Architects and Builders who are invited to avail themselves of our advisory service.

DUSSEK

DUSSEK BITUMEN & TAROLEUM LTD

EMPRESS WHARF, BROMLEY-BY-BOW, LONDON E.3

Telephone: ADVance 4127 Telegrams: TRINIDITE Bochurch London

WARRINGTON
Loushers Lane, Wilderspool

GLASGOW
Barrhead South Goods Station

CARDIFF
18, Park Grove

Branches, Associated Companies & Agents in Australia, Belgium, British East Africa, Denmark, Malta G.C., New Zealand, Norway, South Africa and Sweden.

dmDB173

In Dongola

or Doncaster

Construction goes ahead

A comfortable home for a Sudanese trader . . . a spacious Community Centre for Yorkshire workmen . . . wherever development is planned, more buildings are needed.

Medway prefabricated systems enable the rapid construction of permanent or temporary buildings at lower cost, with the minimum of site labour. Ingenious designing and precision manufacture permit maximum flexibility in planning. Availability of units in over 100 sizes ensures the speedy completion of any building project without expensive, time-wasting hold-ups.

MEDWAY TIMBER BUILDINGS ARE IDEAL FOR

Labour Camps or Libraries, Factories or Farm Buildings, Hostels or Hospitals, Schools or Sports Pavilions, Pavilions or Pubs, etc.

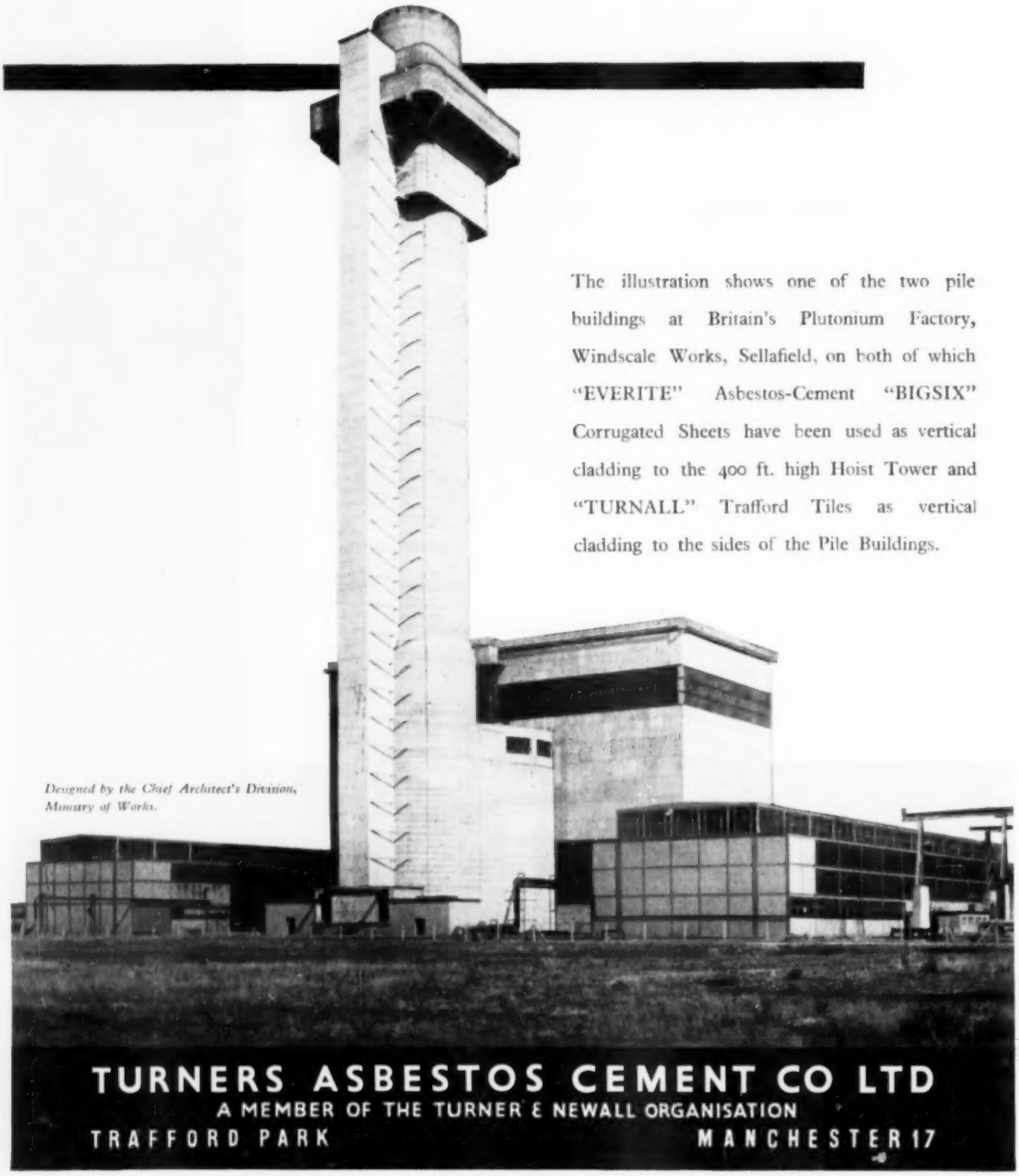
Whatever your particular need, there's a Medway design to suit your purpose perfectly. Let us know your requirements or ask for a representative to call.

MEDWAY TIMBER BUILDINGS

MEDWAY BUILDINGS AND SUPPLIES LTD.
3 Phoenix Wharf, Rochester, Kent. Telephone: Strood 7521

ASBESTOS–CEMENT

on Britain's Plutonium Factory

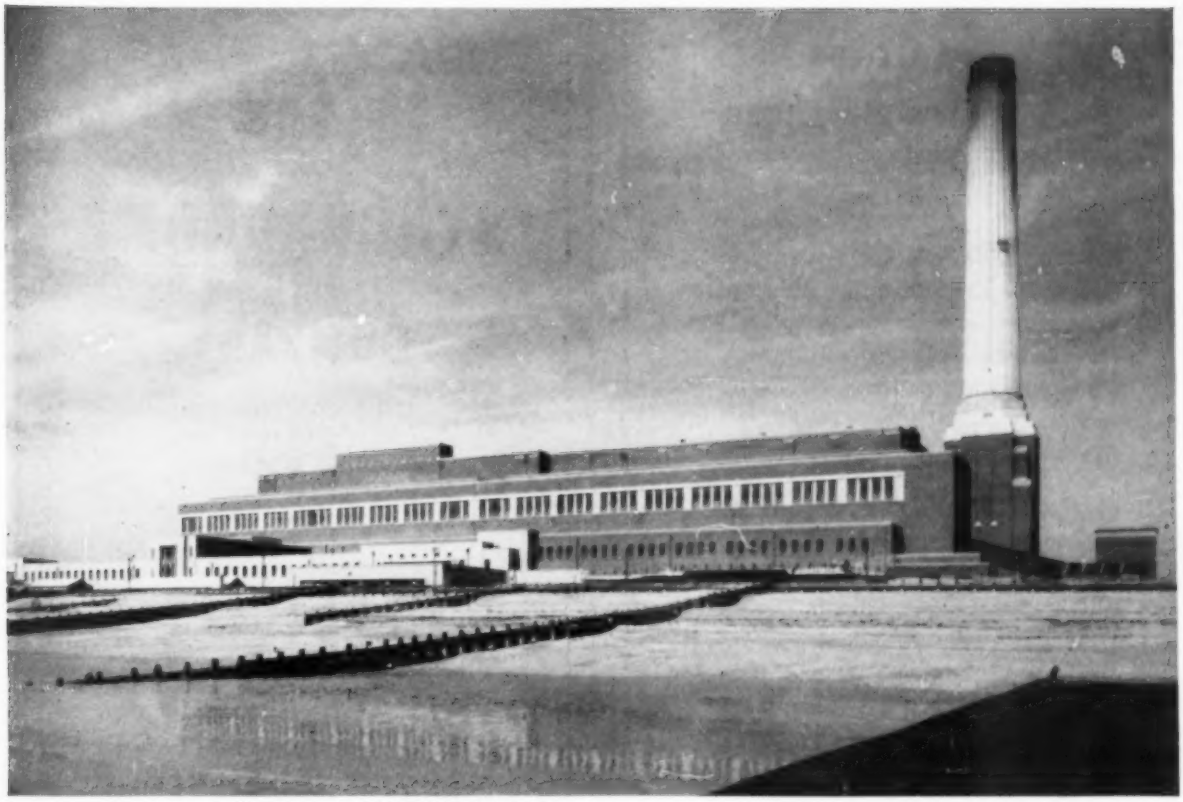


The illustration shows one of the two pile buildings at Britain's Plutonium Factory, Windscale Works, Sellafield, on both of which "EVERITE" Asbestos-Cement "BIGSIX" Corrugated Sheets have been used as vertical cladding to the 400 ft. high Hoist Tower and "TURNALL" Trafford Tiles as vertical cladding to the sides of the Pile Buildings.

Designed by the Chief Architect's Division, Ministry of Works.

TURNERS ASBESTOS CEMENT CO LTD
A MEMBER OF THE TURNER & NEWALL ORGANISATION
TRAFFORD PARK MANCHESTER 17

G.22



BRIGHTON POWER STATION

Empire Stone *was used in the construction of Brighton Power Station*

BRIGHTON POWER STATION

L. G. Mouchel & Partners Ltd., Consulting Civil Engineers J. H. Somerset, F.R.I.B.A., Consulting Architect

Empire Stone Company Limited

THANET HOUSE, 231 STRAND, LONDON, W.C.2.

BERKELEY HOUSE, BIRMINGHAM 16

NARBOROUGH, Nr. LEICESTER

324 DEANSGATE, MANCHESTER 3

C

THE EASY PRACTICAL WAY TO COVER INSULATED SURFACES

Sewing the canvas—or applying metal strapping—are time consuming operations which are no longer necessary. The canvas, asbestos, fibreglass or other insulating material can be more securely bonded and in less time with Arabol Lagging Adhesive.

This adhesive dries in 4 to 6 hours, leaves a white coloured sized finish on the covering material . . . the job is completed. No paint is necessary on this sized finish, unless one coat is preferred for appearance or identification. Maintenance too is simplified—grease, oil, soot and dirt wash off easily. And the adhesive is vermin-proof . . . fire-retardant as well.

Arabol Lagging Adhesive has successfully passed severe tests by independent laboratories. The results show that it retains its adhesive powers despite exposure to extreme temperatures, immersion in water and to live steam.

Specify Arabol Lagging Adhesive for reliability to satisfy the most exacting requirements, for utility and appearance, and to save time and cost. Write to-day for further details to—

THE **ARABOL** MANUFACTURING CO. LTD.,
Wardrobe Chambers,
146a, Queen Victoria Street,
LONDON, E.C.4.
Telephone: CITY 2368.

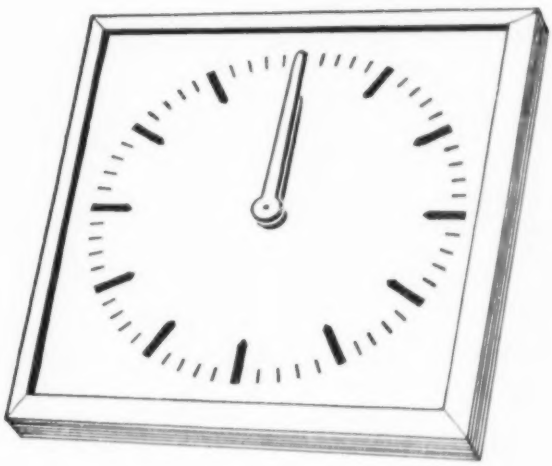
Adhesives?... **ARABOL!**

THE SYNCHRONOME COMPANY, LTD.

Manufacturers of Electric Clocks for all purposes

ABBEY ELECTRIC CLOCK WORKS
WOODSIDE PLACE, ALPERTON, WEMBLEY, MIDDLESEX.
Tel.: WEMbley 3643-4-5.

From noon to noon



concrete sufficiently hard for almost any purpose

Concrete made with '417 Cement' is ready—for almost any duty—24 hours later. The time saved by its use means important savings in cost and greater productivity of plant, shuttering, etc. Please write for full particulars of '417 Cement.'

'417 cement'

QUICK SETTING—EXTRA RAPID HARDENING

THE CEMENT MARKETING COMPANY LIMITED, PORTLAND HOUSE, TOTHILL STREET, LONDON, S.W.1. *or* G. & T. EARLE LTD, WILMINGTON, HULL · THE SOUTH WALES PORTLAND CEMENT & LIME CO., LTD., PENARTH, GLAM.

A BLUE CIRCLE PRODUCT CMC

37

BRITISH CEMENT IS THE CHEAPEST IN THE WORLD

Your ideas —or ours?

A furnishing scheme? No doubt you will have ideas of your own. We will interpret them with skill and understanding. On the other hand, you may prefer to see what we can do. Our studio will prepare a scheme for one room or an office block, and carry it out—down to the last ashtray. Either way, you can be sure of work well done by designers and craftsmen with long experience of collaborating with architects. Please write for our new booklet, *Furniture for Special Needs*. Better still, visit our new showrooms, and look around for yourself.

The Managing Director's office, The Lapointe Machine Tool Co., Watford. Architects: Messrs. Welch and Lander. Furnishings by Heal's in collaboration with the architects.

HEAL'S CONTRACTS LTD

196 TOTTENHAM COURT ROAD, LONDON, W.1

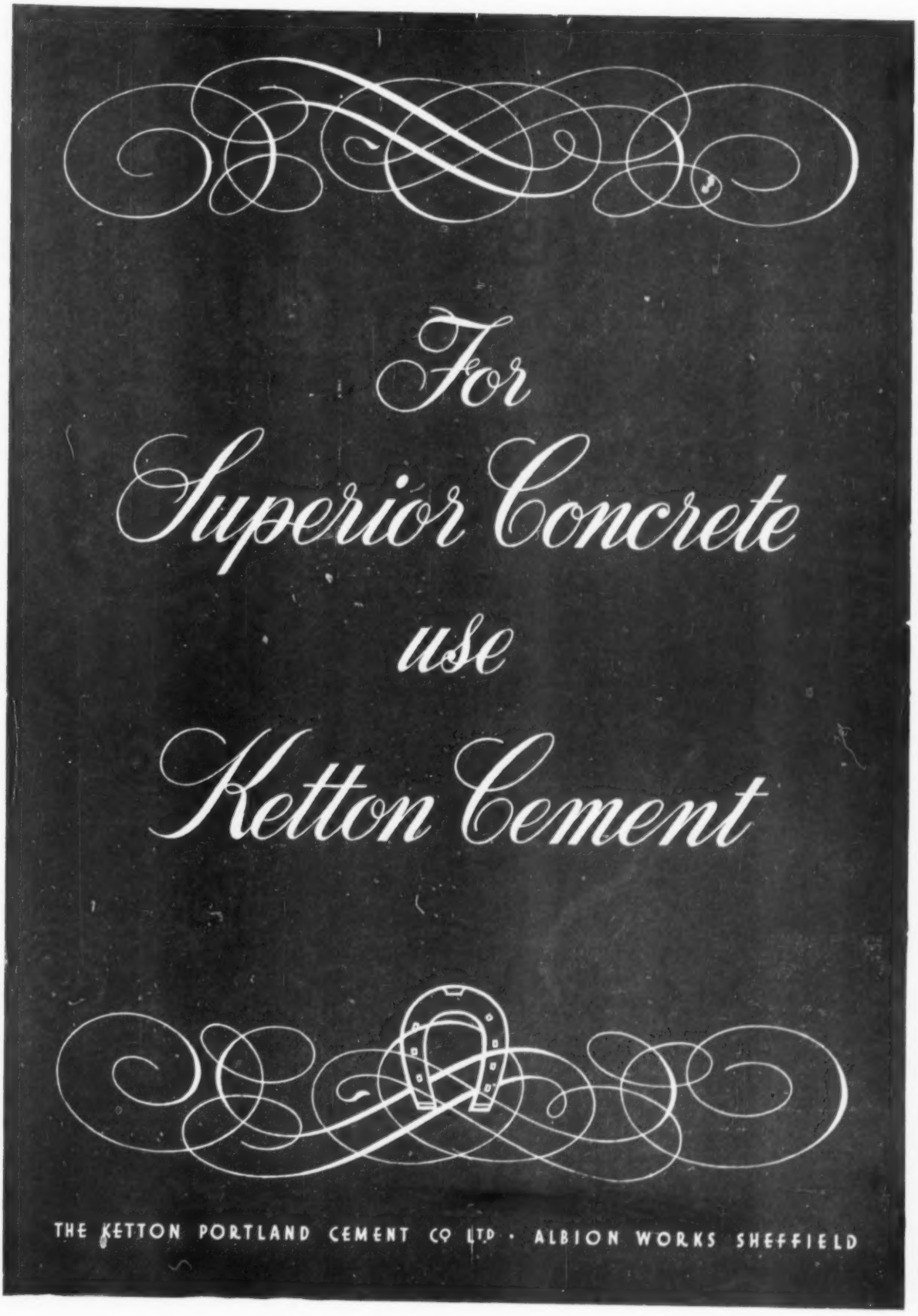
structural steelwork

- DESIGN
- FABRICATION
- ERECTION

The large illustration shows the Standard Sectional Factories for the Harlow Development Corporation. The High-Tensile Steel used has a yield point more than twice as high as that of mild steel, and the Lattice Construction employed can result in cutting down the weight of steel needed by half. Executive Architects: V. Hammett, B.Sc., A.R.I.B.A., A.R.I.C.S.
Inset: Erecting part of the all-welded structure which we designed and supplied to the I.C.I. Deep Lattice Beams and Light Stanchions have been used with nearly fifty per cent. saving in Steel requirements, as compared with ordinary R. S. J. construction. This multi-storey building has a height to eaves of 44ft and uninterrupted spans of 50ft on each Floor. Architects: Messrs. J. Douglas Mathews and Partners.
Write for full details and data sheets.

Sommerfelds LTD. | LONDON OFFICE: 167 VICTORIA ST. S.W.1 TEL: VIC. 8843 AND 1000
WELLINGTON · SHROPSHIRE TEL: 1000

J.T.L. 12


For
Superior Concrete
use
Ketton Cement
THE KETTON PORTLAND CEMENT CO LTD · ALBION WORKS SHEFFIELD

An Important Improvement

in

HOT WATER TANKS

IN keeping with their progressive policy, and to meet the requirements of the Building Industry, Harveys have designed a new type of Manhole and Cover for "HARCO" HOT-WATER TANKS.

The main advantage of this development is that of preventing the thread of the bolts from coming into contact with water, thereby avoiding corrosion—and the consequent risk of shearing the bolt heads—and greatly facilitating removal of the cover for servicing.

This is achieved by securing the heads of the bolts inside the tank, so that the screwed portion projects outside.

No hemp, red lead or other jointing material is required when fixing the cover, other than the India Rubber Ring which is supplied with the tank. This ring, together with the grummets fitted under the bolt heads inside the tank, enables a perfect seal to be made in much less time.

The cover itself is slightly convex to give additional strength, and the turned-over edge of the manhole presents a smooth rounded surface which cannot injure the hands or arms when installing the tank.

Ask for List No. A 873.

'Harco' Patent Manhole & Cover

Please obtain your supplies through your usual Builders' Merchant or Ironmonger.

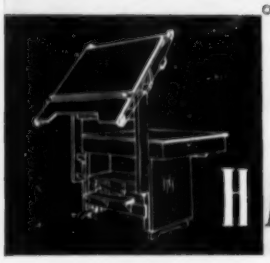
Harvey

Patent No. 664463

G. A. HARVEY & CO. (LONDON) LTD., Woolwich Road, London, S.E.7. (GREenwich 3232, 22 lines)

Are you concerned with the problems of space.....

If the space between adjacent draughtsmen were relative to that between neighbouring stars, the necessity for the 'Union' Adjustable Drawing Table would not have arisen. How this combined drawing and layout table can solve the problem of available space in the Drawing Office without sacrificing any of the desirable positions necessary to maintain a high standard of draughtsmanship, is described in a fully illustrated brochure which will be gladly sent on application to:



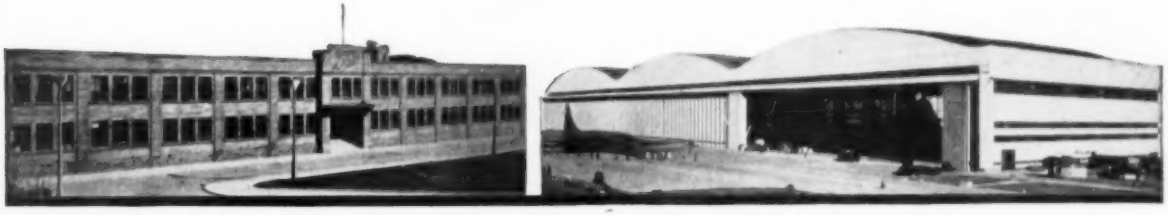
drawing office materials & equipment manufacturers

HALL HARDING LTD. STOURTON HOUSE, DACRE STREET, LONDON, S.W.1

Telephone — ABBEY 7141 *Telegrams* — INSPECT, SOWEST

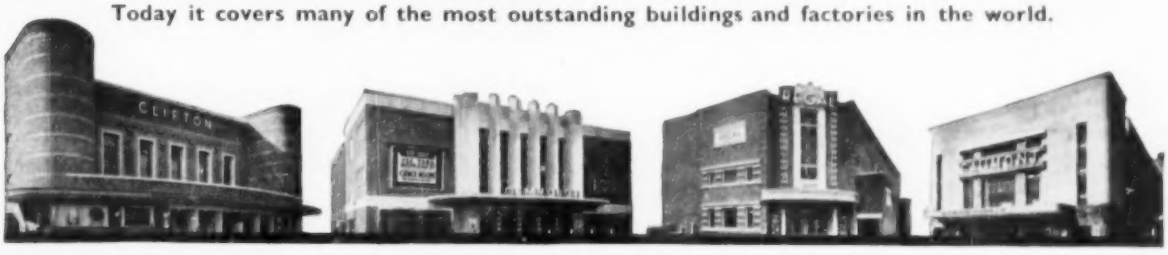
FOR A QUARTER OF A CENTURY

RUBEROID INSULATED STEEL ROOFS



HAVE STOOD THE TEST OF TIME*

* The Ruberoid Co. Ltd. originated the Insulated Steel Roof Deck 25 years ago. Today it covers many of the most outstanding buildings and factories in the world.

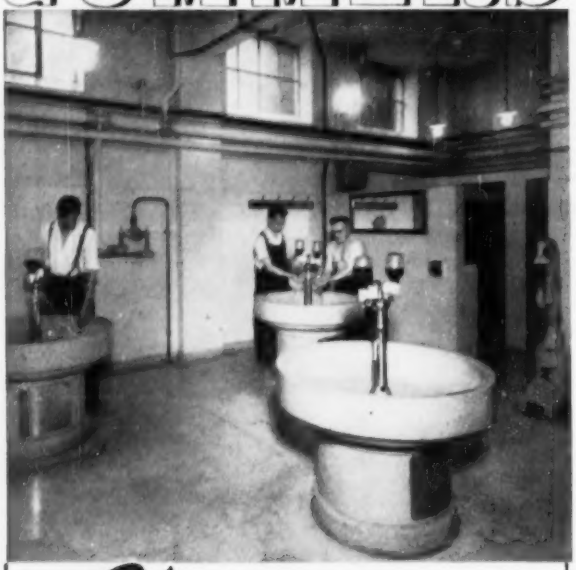


THE RUBEROID COMPANY LIMITED, 93, COMMONWEALTH HOUSE, NEW OXFORD STREET, LONDON, W.C.1

AND ABERDEEN · BELFAST · BIRMINGHAM · BRISTOL · EDINBURGH · EXETER · GLASGOW · LEEDS · MANCHESTER · NEWCASTLE-ON-TYNE · NOTTINGHAM

S.D.145

GUMMERS



Shower Equipment

Type E.2 "Security" Thermostatic Mixing Valve supplying three wash fountains in the amenities centre at the works of Park Gate Iron and Steel Company, Limited.

GUMMERS LIMITED
ROTHERHAM

TELEPHONES :- ROTHERHAM 4865-6-7
TELEGRAMS :- "GUMMER" ROTHERHAM

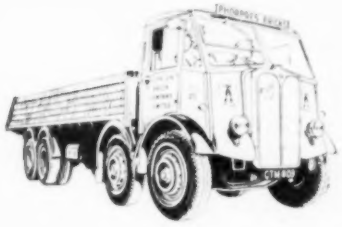
Vulcanite Roofing

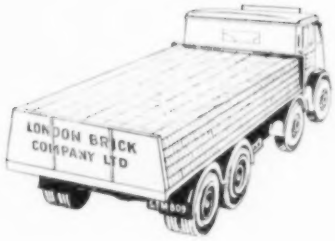
for every type of Roof

Original patentees of Bituminous built-up-roofs

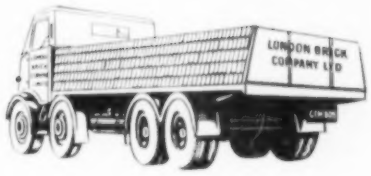
VULCANITE Ltd

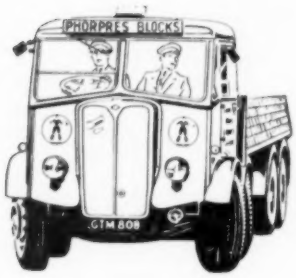
TRIDENT WORKS · WIGAN
GLASGOW · LONDON · BELFAST



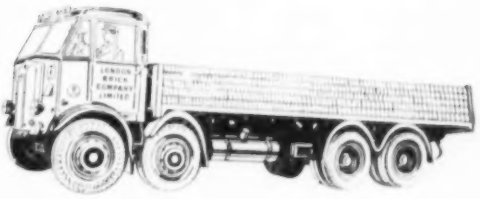


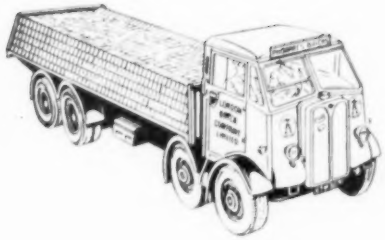
Wherever





you go . . .





All over the country you see increasing evidence of the efforts we are making to satisfy growing demands, with more kilns now producing more and more bricks and blocks, and with organised distribution by road, rail and water.

PHORPRES

LONDON BRICK COMPANY LIMITED *Head Office*: AFRICA HOUSE, KINGSWAY, LONDON, W.C.2
Telephone: Holborn 8282. *Midland District Office*: Prudential Buildings, St. Philip's Place, Birmingham, 3
Telephone: Colmore 4141. *South Western District Office*: 11 Orchard Street, Bristol, 1. Telephone: Bristol 23004/5
Northern District Office: Gascoigne Street, Boar Lane, Leeds, 1. Telephone: Leeds 20771

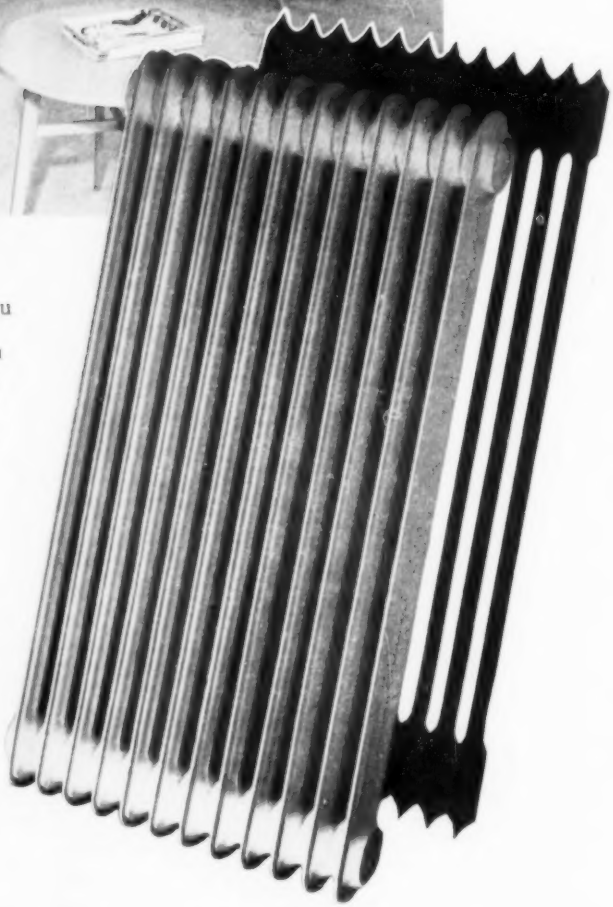
BY APPOINTMENT
BRICKMAKERS TO
THE LATE
KING GEORGE VI

LB2F

D

The Radiator you need is in the Stelrad Range

You will find in the Stelrad Range the Radiator you need for keeping heating efficiency in harmony with interior design. In the picture above, by courtesy of Messrs. Johnson and Johnson Limited of Slough, you see the two column Stelrad which can be supplied to practically any length and to a height of 36". This radiator is only 3" wide. We have agents and representatives throughout the British Isles at your disposal to advise on the Stelrad range of central heating radiators.



STEEL RADIATORS LIMITED

BRIDGE ROAD, SOUTHALL, MIDDLESEX.

Telephone : Southall 2603

Vol. 206 No. 1

THE ARCHITECT & BUILDING NEWS

1 July 1954

The "Architect and Building News" incorporates the "Architect," founded in 1869, and the "Building News," founded in 1854. The annual subscription, inland and overseas, is £2 15s. 0d. post paid: U.S.A. and Canada $9.00

Published by ILIFFE & SONS LTD., DORSET HOUSE, STAMFORD STREET, LONDON, S.E.1
Telephone: WATERLOO 3333 (60 lines). *Telegrams:* "ARCHITONIA, SEDIST, LONDON."

Branch Offices: Coventry: 8-10 Corporation Street; *Birmingham:* King Edward House, New Street; *Manchester:* 260 Deansgate. *Tel:* Blackfriars 4412 (3 lines), Deansgate 3595 (2 lines); *Glasgow:* 268 Renfield Street.

TWELFTH REPORT OF THE R.F.A.C.

THE Royal Fine Art Commission's Report for 1953* was published last week and aroused considerable interest in the national Press. The verdict might be summed up in this comment in the *Manchester Guardian.* "The Commission's job often consists of trying to reconcile the irreconcilable. No wonder its report is sometimes a little downcast in tone even though it manages to do so much at the modest cost of £66 per week."

The responsible sections of the Press are usually anxious to support any movement to prevent gross mistakes being made and irreparable damage being done in town and country. The R.F.A.C. report offers ammunition in the way of crisp and sometimes tart phrases easily understood by the layman; for example, apropos the Commission's failure to convince the authorities that irreparable damage will be done to the amenities of Great Yarmouth by the proposal to erect a new power station at South Denes. "There seems to be a tendency to believe that bad siting can be remedied by impressive elevations or elaborate brickwork; it would be unfortunate if such a view were generally accepted."

The most intractable cases are the central urban area reconstruction schemes, the low architectural standards of which are causing the R.F.A.C. increasing concern.

"Too often it is not consulted at all or consulted at such a late stage that serious improvements cannot be considered. In the City of London the extension of *Lloyds* is a case in point and the *Bank of England* was only submitted when major planning decisions had already been taken."

The report quotes the case of Bucklersbury House as an example of a building that "might have been very much worse" but for the efforts of the Commission. A statement that will be endorsed by anyone who has seen both the first and final designs.

This is indeed serious, for however many individual buildings are "improved" up to tolerable standards, what really matters most are those larger projects that constitute environment, whole areas of heavy-handed mediocrity, unable to revive the splendour of the past, unwilling to express the advances of the present.

The Report notes with satisfaction the enterprise shown in the scheme for the South Bank, where second thoughts have found a better site for the National Theatre, a change which meets the Commission's earlier criticism.

We suggest that the right strategy would be to do everything to ensure that the standard already set on the South Bank is maintained in all contiguous areas, forming eventually an effectual neighbourhood free of pompous irrelevancy. The City, on the other hand, might be allowed to go its own way, subject to rigid control round St. Paul's (which might be screened by a narrow plantation) and the River Front. London is large enough to embrace divergent styles. Better to sacrifice past, than have the whole a jumble.

The Report is glad to record further progress in the design of power stations and notes that the Committee of Enquiry into Economy in the Construction of these monsters has endorsed R.F.A.C.'s preference for "direct architectural expression," and mention is made of Willington where most of the plant is left exposed, "but carefully planned and detailed," an essential proviso.

Further, it appears that gas works are to change direction towards the same goal, and the above stipulation on careful planning and details needs

* *Twelfth Report of the Royal Fine Art Commission. H.M.S.O. Cmd.* 9177. *Price* 6*d.*

even more attention in this field. (The first really fine gas works will be hailed with enthusiasm.)

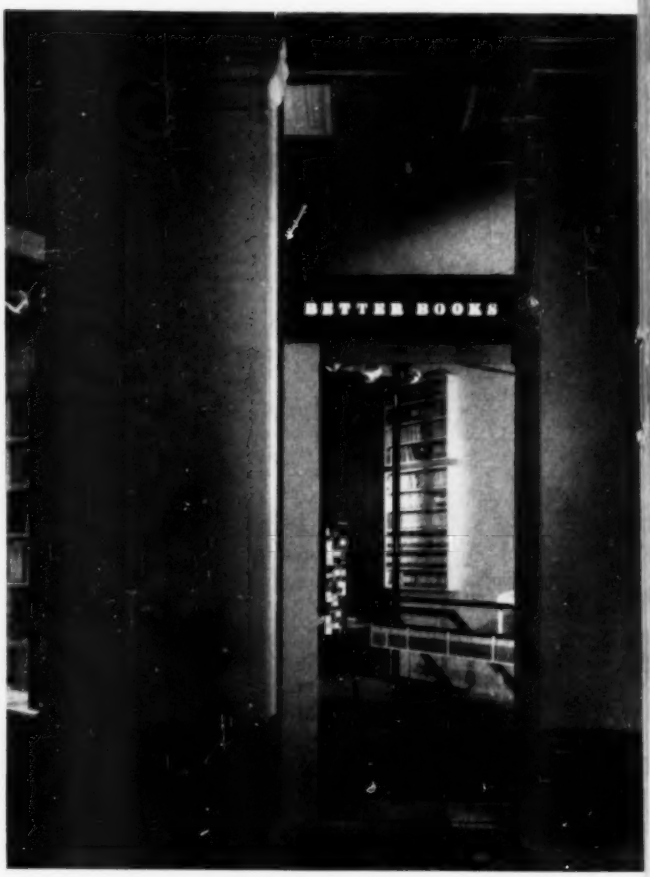
The Report lists a number of matters dealt with during the year, including bridges, street furniture and memorials as well as planning and buildings.

It concludes with paragraphs on two of the toughest bad eggs, *Street Lighting* and *Trees*.

The first continues to give the R.F.A.C. great concern and "calls for constant vigilance on the part of local amenity societies. With the easing of the steel supply position and the development of improved types of standard, encouraged by the Council of Industrial Design, it should seldom be necessary any longer to make use of the heavier concrete columns and brackets that were introduced immediately after the war."

Nevertheless, there are some good concrete Transport Board bus stops to be seen which prove that it is a matter of design rather than material used.

The second recalcitrant problem, the continued mutilation of trees by many local authorities is indefensible. Strong measures should be taken in future against those individuals who continue to ignore appeals for proper treatment. The deaf ear and the blind eye were never qualifications for public service.



EVENTS AND COMMENTS

A GOOD TRADE FILM

The standard of the general run of building industry trade films is very low and it is a pleasure to welcome a successful world première from the British Plaster Board, Limited, entitled *Gypsum in Building*. This film, which was partly made at the Building Centre, replaces the film *Wonder Rock*, which has been shown more than 400 times. Introducing the new film, Mr. Bromley Davenport, Managing Director of the B.P.B., said that *Wonder Rock* had been criticized for its lack of technical information. *Gypsum in Building* meets this criticism with much useful information on the choice, mixing and application of gypsum plasters. The film is free from sales talk and trade names and is a workmanlike job without frills. It runs for half an hour and is well worth including in a technical film show. The star is Mr. Smith, one of B.P.B.'s head technicians.

AMERICAN EVENING

Mr. Denys Lasdun gave a talk at the A.A. last week on his impressions of American architecture, with particular reference to the work of Mies van der Rohe. He pointed out that his visit was short—it was, in fact, his honeymoon and that shows what a serious-minded architect he is—and that he had seen comparatively little. All the same, he seems to have collected a very well balanced set of impressions. He banged no drums and flew no kites. He merely reported what he saw and heard, with his own comments. He divided architects into "What" architects and "How" architects, F.L.W. being the leading example of the former and Mies of the latter (the President, Peter Shepheard, wished to add "Why" architects as representing most students). Mr. Lasdun made no vast claims for F.L.W.'s work, except to say that, from his personal observation, his houses were extremely difficult to copy, nor for Mies' work, although he seems to have found it spiritually and—to a slightly lesser extent—technically satisfying.

On top of the Empire State Building, Mr. Lasdun talked with an American who disliked the grid planning of the States and much preferred the haphazardness of London, where you found your position by recognizing particular features rather than by calculating street numbers. "Tell me," said the American, "do you have TV in England?" Mr. Lasdun said we had. "Well, do you know that we have got to such a state in this country that anyone who actually goes to see a ball game is reckoned to be an athlete."

Mr. William Morris, acting Cultural Attaché at the U.S. Embassy, proposed the vote of thanks and said that in America it was usually thought that an architect would listen attentively to his client explaining how he wanted his house to be designed down to the minutest detail, and would then go away and prepare a design incorporating only about 50 per cent of his client's requirements. The

BETTER BOOKS LTD.

94, Charing Cross Road

Designers: Ronald Ingles and Vaughan Davidson.

Contractors: F. W. Clifford Ltd.

The original corner shop was extended by opening up and converting its dilapidated storage basement. The ground floor shop then partially redecorated to give a degree of conformity to the whole.

New Entrance to existing premises: Armour plate glass door hung in welded steel framing, stove enamelled matt black. Cutout letters are backed with white opal glass. The vertical panel on left of door is sheet steel, stove enamelled gloss yellow: the push plates are vitreous mosaic and vitrolite squares of red, black and white set in matt black steel pans.

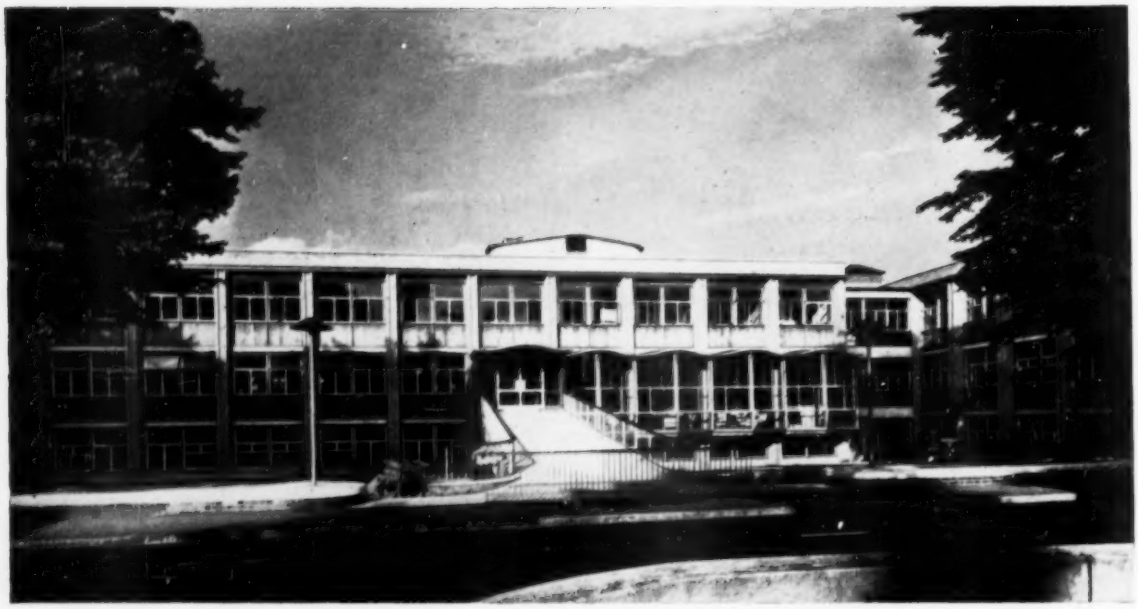
New premises in basement: shelf units in timber painted gloss white supported on adjustable brackets. Cork strips inset for index lettering. Lift of sheet steel, painted gloss white outside, scarlet inside, with polished brass trim to aperture. Assistant's desk black and white glazed tiles with polished brass edging and white steel legs.

Below: New premises in basement: stair treads and handrails in stained and polished hardwood, stringer and balusters, steel tubing finished gloss white. Half landing of reinforced concrete on brick supports, surfaced with vitreous mosaic and vitrolite squares in red, black and white: edge finished white cement. Ceiling matt blue, rear wall flat white: wall over half landing of waxed deal T and G planking, fitted brass sockets for suspended display units. Carpet mushroom pink. Lighting from ceiling: 75w silvered spot lamps. From column 40w lamps in Forrest Modern fittings, finished red, yellow and white. 30 fluorescent tubes above planking to light display surface.

cost would invariably be some 40 per cent more than the client was prepared to spend.

Mr. Peter Trench, Managing Director of Bovis, Ltd., seconded the vote of thanks. He visited America at the same time as Mr. Lasdun to find out the answer to two questions; first, how could American contractors pay their men six times the British rate and yet produce buildings only 30 to 50 per cent more expensive than British buildings, and secondly, how they managed to build so fast. The answer to the first question was that site work was reduced to a minimum and nearly all wet work was eliminated. Planning was extremely detailed and a great deal was done in the factory. The men themselves worked harder than in England. Harder work meant more money and everyone was interested in that. Buildings went up quicker partly because they used far more men on the site than we do. There was virtually no overtime (it costs double time), two shifts were sometimes worked, or, if there was bad weather, arrangements were made to cope with it. If there was a strike it was dealt with at once and, if necessary, more men were brought in to catch up with the work. Co-operation between builder and architect was very good and the builder saw to it that he was not held up by the architect. There were no nominated sub-contractors.

With so much factual information a lively discussion followed (one newly qualified young man had the temerity to say that he had seen some of Mies' work and found it very dull), and for once a full house and a really worthwhile evening coincided.



The new Out-Patients' Building, St. James' Hospital, Balham. Architects: A. H. Devereux & E. L. W. Davies, F.F.R.I.B.A., which has been awarded the London Architecture Bronze Medal for 1953.

SCANDINAVIA IN LONDON

Finmar celebrated the completion of their new showrooms at 26, Kingly Street, W.1, last week. The conversion and decoration has been carried out by James Cubitt and Partners in the fashionable black, white and spotlamp style, and very successful it is as a background to contemporary Scandinavian furniture and furnishings. Since the war, Finmar have not had very much to show in their Holbein Place showrooms and it is a pleasure to see such a wide range of good things in their new building. Particularly welcome are stainless steel cutlery and dishes familiar to everyone who has visited Scandinavia. I did not notice any outstanding furniture developments but I saw plenty to make my mouth water, and in the basement a large fish pond in which I would gladly have cooled myself.

FILM STRIPS ABOUT FURNITURE

It is probably my fault that although the C.o.I.D. has been making film strips since 1946, I did not hear about them until the other day. Now I know quite a lot about them and have seen the two latest, one about dining and tea tables and the other about the development of the sideboard. Each contains somewhere around thirty frames and the price of 15s 5d post free covers a folder of teaching notes. Extra teaching notes are available for a further 4s 8d post free. These film strips were originally intended for schools, but they are also suitable for any classes of people interested in furniture or good design generally. I thought both pictures and commentary of high standard, and can quite understand that there is a great deal more in making a film strip than would appear at first glance.

Would the R.I.B.A. consider making film strips of good architecture for showing in schools? And surely a lot could be done for good design by making strips on well-designed building components and fittings for showing to architects and students.

THE CAFÉ ROYAL

I have received a pretty firm letter from Messrs. Forte's commenting on my remarks about the Grill Room at the Café Royal in the issue dated June 10. I am assured that I completely misunderstood the firm's intentions about the Grill Room and that the only alterations in view are the provision of "new table equipment, such as fresh flower decoration and new table silver."

Messrs. Forte's say that they have every intention of preserving the restaurant interior, and that earns them a good mark. With so many famous restaurants being taken over and rebuilt for other purposes, Messrs. Forte's feel that every encouragement should be given to a company which is prepared to preserve and, where possible, spend a lot of time and money on purchasing and restoring as many of these old premises as possible! No one will deny that this is the right course to pursue, and we can only hope that they will take the best advice available and that their public-spirited action will bring its just reward. Meanwhile, they are working on the Café Monico. Messrs. Forte's already own the Criterion, with the Puritan Maid, the White Bear and à la Broche, all within a stone's throw of each other, and they are, of course, very much concerned with the running of the Festival Gardens. They therefore carry a heavy responsibility in the world of restaurant design.

The efficient provision of good food is only half the problem of running a restaurant, and it would be most satisfactory if we could look to Messrs. Forte's as the leaders of good restaurant design, both in making the best of our few remaining period pieces and in the development of new ideas in decoration, lighting, china, glass, cutlery, and all the *objets* which go to give each type of restaurant its particular character and ambience. Only an expert can provide the good food and only an expert the good design. Messrs. Forte's have declared their aims; we shall look forward to the results with interest.

ABNER

NEWS OF THE WEEK

T.P.I. President Elect

At the first meeting of the newly elected Council of the Town Planning Institute Mr. E. H. Doubleday, O.B.E., was elected President for 1954-55 and will take office in November next on the expiration of the term of office of Sir William Holford. Mr. Doubleday is County Planning Officer for Hertfordshire.

Notes from the Minutes of R.I.B.A. Council Meeting Held on June 15

Appointments.

(A) *Codes of Practice Committee for Buildings: R.I.B.A. Representatives:* George Fairweather, E. D. Mills, R. N. Wakelin, F.F.R.I.B.A.

(B) *B.S.I. Committee B/75 : Modular Co-ordination: R.I.B.A. Representative:* O. C. F. Carey, A.R.I.B.A., in place of C. C. Handisyde, A.R.I.B.A., declined.

(C) *B.S.I. Committee TIB/3 : Definitions and Nomenclature of Timber: R.I.B.A. Representative:* G. Newell, A.R.I.B.A.

(D) *Sheffield University Court of Governors: R.I.B.A. Representative:* S. Elden Minns, L.R.I.B.A.

Report of the Millard-Tucker Committee on the Taxation Treatment of Provisions for Retirement.

Mr. Charles Woodward, A.R.I.B.A., and the Deputy Secretary were appointed to represent the R.I.B.A. at further meetings to be convened by the Law Society for the purpose of studying what action might be taken to implement the recommendations of the Millard-Tucker Committee on the taxation treatment of provisions for retirement by self-employed professional men, in consultation with representatives of leading professional bodies.

No. 68 Portland Place.

The Council approved of instructions being given to Messrs. Wornum and Playne, F.F.R.I.B.A., to prepare plans and an approximate estimate of cost for the rebuilding of No. 68 Portland Place, with a view to this rebuilding being completed, as covenanted with the ground landlords, by 1960.

Regulations governing the Promotion and Conduct of Architectural Competitions.

On the recommendation of the Competitions Committee, the Council gave approval to a revised definition of the title "architect" for insertion in the Regulations and in the Model Form of Conditions. The revised definition will read as follows:—

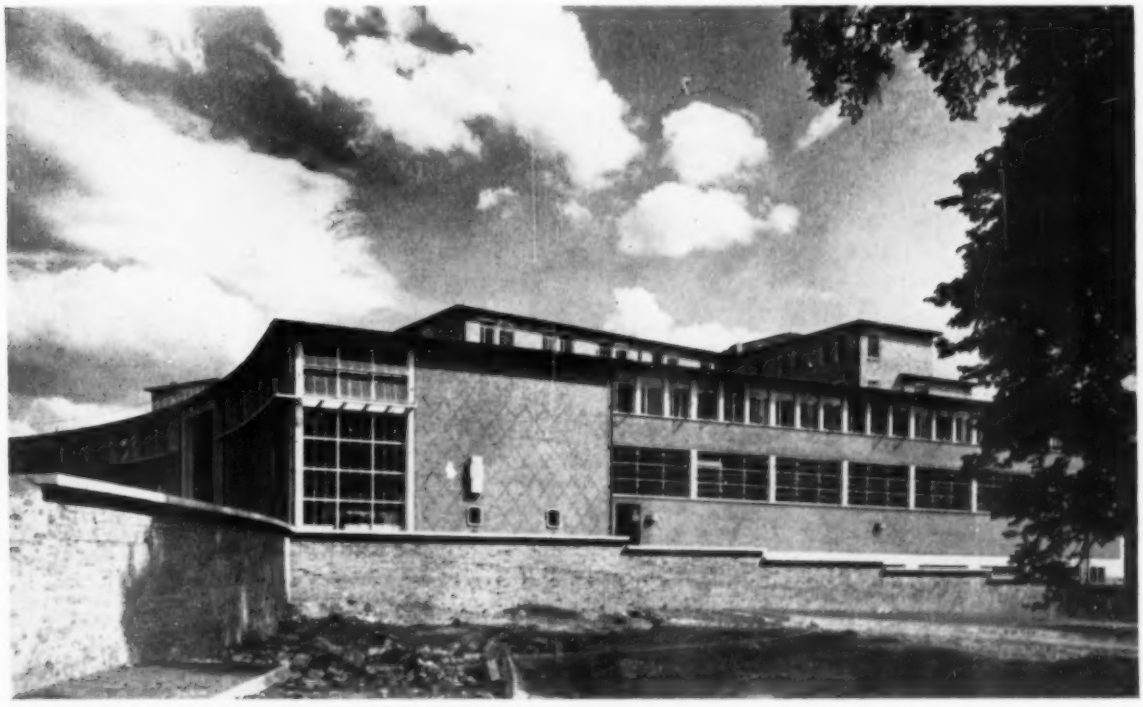
"For this purpose the word 'architect' shall mean any person who at the time of his application for the competition conditions is registered under the Architects' Registration Acts, 1931 and 1938, or, being qualified for registration had already made application to the Architects' Registration Council in the prescribed form to be admitted to the register. Any applicant for the conditions should state his registration number, and in the case of an unregistered person who has made application for registration, the date of such application and the number of the receipt issued by the Architects' Registration Council in respect of the admission fee. Where application is made by a firm the registration numbers and dates of registration of the architect partner or partners of the firms must be given."

The council also gave approval to revisions to the Directions for Assessors aimed at saving time at each of the various stages of a competition and also encouraging the holding of two-stage competitions in suitable cases.

APPOINTMENTS

Mr. Thomas H. Corner, A.R.I.B.A., A.M.T.P.I., at present Chief Architect, City of Cambridge, has been appointed Assistant City Architect under Alexander Steele, Esq., D.A. (Edin.), A.R.I.B.A., City Architect, Edinburgh. The appointment carries a salary of £1,000-£1,200 and was open to candidates who were Chartered Architects by examination.

Mr. Kenneth M. Raw, A.R.I.B.A., Chief Assistant Architect to the Anglesey County Council has been appointed Assistant Deputy Education Architect to the Staffordshire County Council.



North-west end of the Scenery block, B.B.C. Television Centre, White City. This block, recently completed, is the first part of the large project designed by Graham Dawbarn in association with M. T. Tubsbury, Civil Engineer to the B.B.C. The building will be fully illustrated in a future issue.

CORRESPONDENCE

Ove Arup and Partners

To the Editor of A. & B. N.

Sir,—In a supplement to the *Architect and Building News* of June 17, 1954, dealing with the new Canopy to the Royal Festival Hall, we are mentioned as the architects for the job. We are, of course, the engineers, the architects being the L.C.C. Architects' Department.

Although we appreciate your efforts on our behalf, this is from our point of view a very unfortunate piece of publicity; and I should be grateful, therefore, if you would be good enough to publish this letter in your next issue, so that the statement can be corrected.

I am, etc.,
OVE ARUP.

Architect & Builders

To the Editor of A. & B.N.

Sir,—I am glad to see that the President of the L.M.B.A., entering into the spirit of your leading article of May 27, has welcomed your suggestion that, following the very successful address which the President of the R.I.B.A. gave recently to a representative audience of builders, a representative of the L.M.B.A. should now address a similar gathering of architects.

There have been several addresses given by Architects to Builders, and I feel that nothing but good can result from a similar address in reverse, as the two parties make a team, and for a team to be effective it must combine its efforts and work to one goal and one only, and that is the efficient running of a building contract.

I am, etc.,
F. LESLIE WHITEHEAD.

Building Construction

To the Editor of A. & B.N.

Sir,—Both Mr. Taylor and Mr. Miller are correct about lack of constructional teaching in the schools. But both fail to blame the right cause.

After all, the schools teach what the R.I.B.A. requires for its exams. (four days design to one of construction).

The whole emphasis, to pass the R.I.B.A. exams., must be design alone, with construction and even economics a very poor sideline.

I write with knowledge as a student of a school, but a fully qualified Building Surveyor, A.R.I.C.S.

I am, etc.,
STUDENT.

To the Editor of A. & B.N.

Sir,—The Schools Course in Architecture has left impressions with most of us. The system of training is not answering the demand for suitably trained architects in this Economic Age of ours.

More and more the question of cost enters into building, and this is a factor here to stay even in the comparatively well-off countries. To meet this challenge and to produce architects of value and distinction, it is imperative that a sound basis of practical building construction, whether orthodox or otherwise, should lie behind design.

Therein lies the shortcomings of the Schools. Very rightly the emphasis must be predominantly on design, but the relationship of design to building construction needs great revision.

It should not be possible for the majority of students, College-bound and commerce-free, to go romping blissfully through the span of instructional years designing craftily without the necessary knowledge of building crafts or costs. In order to maintain the scope and freedom which the schools offer for design, practice and development, I suggest that a certain percentage of the subjects set could be allowed the licence at present seemingly permitted to long lines of impractical imaginings. The remainder should be related to facts and costs, and depend on those factors for acceptance.

If something is not done on the lines of some of the various suggestions aired in the architectural press recently, the future of the profession of architects is going to be sadly handicapped as more and more people pass through the Schools, and less through the more practical training of officers.

I am, etc.,
W. HOME.

1

2

HOUSING MEDAL AWARDS, 1954

1. *South Eastern Area: Site 1, Three Bridges, for Crawley Development Corporation.*
Architect: A. G. Sheppard Fidler, M.A., F.R.I.B.A., A.M.T.P.I.
Builders: Carlton Contractors, Ltd., Eltham, S.E.9.
2. *East and West Riding Area: Hampsthwaite for Nidderdale R.D.C.*
Architects: Needham, Thorp & White, F.F.A.R.I.B.A.
Builders: Arthur Stephenson, Harrogate.
3. *South Western Area: Cecil Street, for Plymouth C.B.C.*
Architect: H. J. W. Stirling, A.R.I.B.A.
Builders: Hill & Lang, Plymouth.
4. *Wales: Cae Bricks for Beaumaris Borough Council.*
Architect: S. C. Foulkes, M.Arch., F.R.I.B.A.
Builders: J. C. Evans, Ltd., Birkenhead.
5. *North Western Area: Clutton, for Tarvin R.D.C.*
Architeat: T. Pritchard, M.I.Mun.E.
Builders: Henry Jones & Sons, Holt, Nr. Wrexham.

3

4

5

News from Birmingham

THE inner workings of a school of architecture, even of one as lively as Birmingham, may not be of great interest to the outside world, unless the subjects discussed or the personalities discussing them are of a validity well beyond the confines of an academic institution.

Both personality and controversy descended on the School last week. The first event was a visit by Sir Hugh Casson. His popularity with architectural students was signified by the reception accorded to him. He was met at the station in a hearse, belonging to a group of fourth year students, by a few structural alterations adapted for a proposed Continental trip. The old Daimler engine, which has probably never travelled at more than 20 m.p.h., will be put through its paces during the summer vacs. The whole school had turned out blocking the sedate street in Birmingham's business centre and Sir Hugh was conducted into the building under an archway of drawn T-squares under a raggle taggle canopy. A long banner across the entrance was suitably inscribed "Welcome to Sir Howard Robertson." After coffee Sir Hugh delivered his paper on "Interior Design."

His thesis was to establish interior design as an art form in its own right. An urge for certain enrichment was innate in every designer and if suppressed it leads to "draughtsman's neurosis," which shows itself in such things as endless squiggles representing rubble walling or "texture," or what you will, on the standard frame and panel elevation! He gave valuable advice about choosing an interior design team which may be summarized

in one sentence: Choose your collaborators, artists, decorators, etc., from among people who speak the same language as you do, but within this framework let them develop freely and listen to them humbly; architects often tended to be too "bossy." Leadership means not to give orders but to make people want to work with you.

While you could do nothing but whole-heartedly agree with Sir Hugh, the second event was sheer controversy. It was a lecture by John Berger, art critic of the *New Statesman*. Mr. Berger has a down on abstract artists. The so-called abstract values in such works as Mondrian's he finds are something of which artists have always been aware but which are meaningless if deprived of content. "If artists only were humbler and recognized that they were only decorators when working in this way!" Painting or sculpture was the interpretation of life into visual experiences and by confining these to "abstract" form was shirking the issue. These artists buried their heads in the sand; "let them stay buried!" Content and form were indivisable Siamese twins, one is meaningless without the other. There were two basic art forms, the "reconstructive" which represent the distillation of experience and includes painting and literature—often making the experience more significant—and "constructive" art which is mainly represented by architecture, and creates the actual physical experience itself. Photography here holds a curious in-between position by being neither the one nor the other but essentially a selection of experiences. To stress composition, harmony, etc., as ends in themselves was assessing art by its lowest common denominator. So, in contrast to all this a new "realism" was emerging everywhere and it was this, of course, which caused the agitation! Fundamentals in our approach to art and many other things are touched off by statements of this kind and give food for—possibly very far reaching—thought to architectural students. It is a pity that, as usual, no contribution comes from those most concerned, the artists themselves.

This is not the place to spin out this debate and we have to leave readers to their own thoughts! H. W. R.

Course in Landscape at Leeds

A new course in Landscape Architecture will start at the Leeds School of Architecture and Town Planning next September and has been established at post-graduate professional level to cater for those wishing to continue their studies in this important subject. The only other organized courses in Landscape Architecture are available at the Universities of London, Reading and Durham. Students taking this course in Leeds will be able to sit the examinations of the Institute of Landscape Architects, with the qualification A.I.L.A. (For full particulars see advertisement pages.)

IN PARLIAMENT

Cars Under London Squares

The Government are going a stage further with the proposal for underground car parks suggested in the report of the working party on car parking in the inner London area. Mr. Lennox-Boyd, Minister of Transport and Civil Aviation, announced that they had decided that to reduce congestion the project was worth examination. He had therefore engaged Sir Owen Williams and Partners, Messrs. Bylander and Waddell, and Sir William Halcrow and Partners as consultants to prepare as soon as possible detailed plans and estimates for garages under Grosvenor Square, Cavendish Square and Finsbury Square, respectively. When he had their reports, he said, he would discuss the matter with the local authorities and other interests concerned before any further decisions were taken. (June 23.)

Hopes for Chatsworth

The Chancellor of the Exchequer has made it clear that the Government are, in principle, in favour of the idea of accepting Chatsworth and its art collection in lieu of death duties, but he would not go further until the negotiations were completed. Mr. Butler first said, in answer to a Labour member's question, that consideration had been given to the future of the collection but he was not yet able to make a statement. Mr. Dalton expressed the opinion that it was desirable to procure the collection undispersed for the nation and to safeguard the building from being pulled down, and that the provisions of the National Land Fund and the Budgets of 1946 and 1953 provided the appropriate machinery. Mr. Butler agreed that the provision in the 1953 Budget was included for the purpose of meeting such cases. But an agreement had to be made that was agreeable to both sides, and he said in reply to Mr. Gaitskell that "the negotiations must be concluded in the national interest with due regard to the private owner's wishes." When that stage was reached—as he hoped—then he could make a statement. Mr. Norman Smith, who had first raised the matter, ended it with the statement that the Chancellor's answers had given some encouragement to the many people who had some regard to aesthetic values, and that "many of us hope that the Treasury will be able to do a deal, provided that some regard is had to reality in valuation." Mr. Butler's comment in reply was "I thank the hon. member, because that I believe exactly represents the feelings of the Government." (June 22.)

New Homes from Old

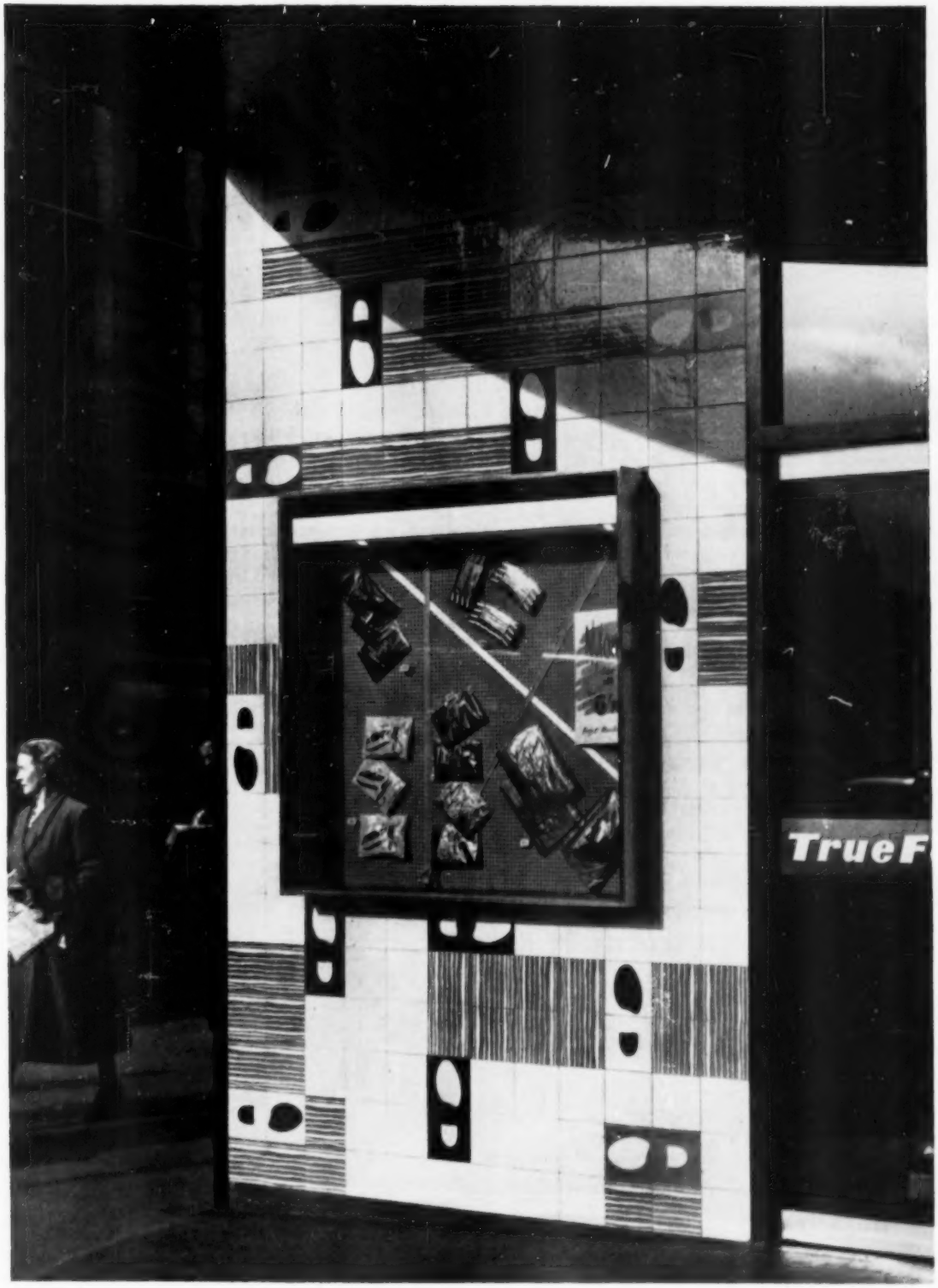
Sir Wavell Wakefield asked the Minister of Housing and Local Government what arrangements were being made to acquaint people outside London with the practical demonstration of the improvement and conversion of older houses on view in the "New homes from old houses" exhibition. Mr. Marples, the Parliamentary Secretary, told him that a circular had been sent to every local authority in England and Wales explaining the purpose of the exhibition and inviting them to send representatives to see it. The Minister looked to the leaders of national organizations concerned with the provision, ownership or management of house property, who were present at the opening of the exhibition, to influence their members throughout the country to come and see what could be done with the help of improvement grants. The exhibition would be open to all every week-day until the end of August, and he hoped that M.P.s would themselves make a point of seeing it and of persuading representative constituents to do so. Sir Wavell Wakefield expressed his satisfaction with all this, and urged Mr. Marples to do everything possible to follow up the publicity to local authorities. Mr. Marples said the Minister was most anxious that authorities should stage similar exhibitions in their own areas, and that M.P.s of all parties would try to influence their local authorities to do so. This was only the start of the campaign. If local authorities would hold similar exhibitions in their areas he thought they could persuade quite a number of private landlords that it was in their own interests that they should convert old property. (June 22.)

Bedroom Ventilation

Mr. Hastings questioned the Minister of Housing and Local Government about houses being built with three bedrooms not one of which had a fireplace, ventilating brick or other means of permanent ventilation, and asked what considerations had induced him to sanction the necessary change in the byelaws. Mr. Marples replied that it was now considered that adequate windows and a door were sufficient. Mr. Hastings protested that there was considerable danger if two or three people were sleeping in a room with the windows and door closed if there was no chimney or ventilator or any sort. Mr. Marples said that often the householder stopped up the air brick. The recommendation was based on the advice of the majority of the advisory committee on building byelaws, which included a member of the Rhyl Sanitary Institute. (June 22.)

The R.I.B.A. Intermediate Examination

The R.I.B.A. Intermediate Examination was held in London, Plymouth, Manchester, Leeds, Newcastle, Edinburgh and Belfast from May 7 to 13, 1954. Of the 459 candidates examined, 153 passed and 306 were relegated.



New True Form shoe shop in Victoria Street. Architects: Katz & Vaughan. General Contractor: Harris & Sheldon. The tiles were designed by Ernest Pollak and supplied by Carters Ltd. The plain tiles are pale ivory. Others are grey lines on ivory background, and "footprints" in black, strawberry and khaki.

RECONSTRUCTION IN WEST GERMANY

Materials and Building Technique

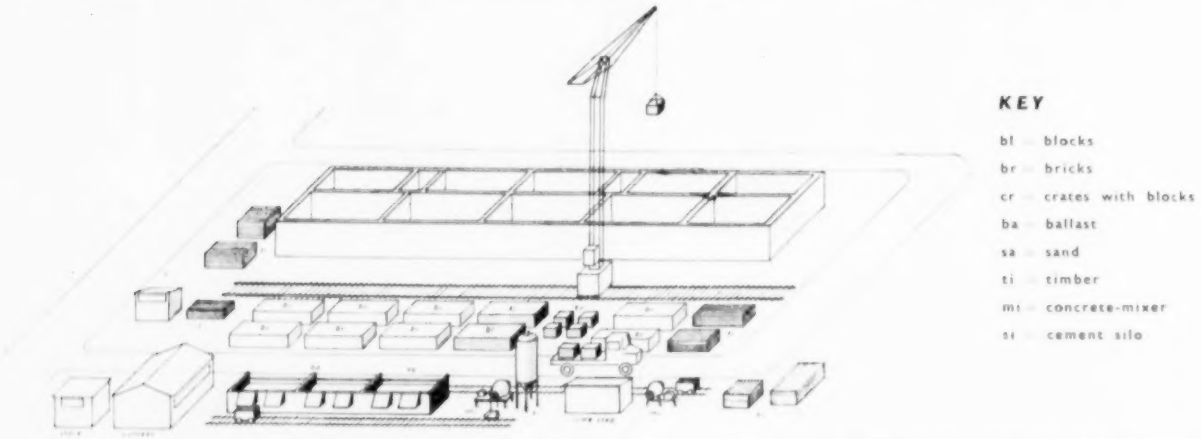
The final article in the series by

ROLF ROSNER, A.R.I.B.A., A.M.T.P.I.

INTRODUCTION

ALTHOUGH Germany's recovery during the last four years has been most remarkable, her current economic equilibrium is precarious. Capital investment and reserves are infinitely smaller than those of Britain; two disastrous wars have left their mark. Positive achievements are the reconstruction of central areas and a very high annual housing output; 515,000 dwellings were completed in 1953. In contrast, vast urban areas have not yet been rebuilt and millions of people still live in quite inadequate quarters. Capital for housing is less readily available than in Britain, interest rates on loans are substantially higher and first mortgage loans more restricted. Building costs are high and so are rents. This point was emphasized only very recently by the managing director of one of the largest West German housing associations who, after visiting London housing estates and the new towns, concluded that German subsidized rents were at least 10 per cent higher per sq metre than ours. Determined attempts have been made since 1950 to reduce costs; most sites are better equipped than ours. Tower cranes, steel silos and conveyor belts are a common sight everywhere. This investment in equipment is largely due to generous government loans to newly established firms and to tax policies favouring private enterprise. If contractors cannot afford to buy expensive equipment, they can hire it from specialist firms. Cement silos are generally loaned by the manufacturers for the duration of a project.

The task of reducing costs is largely the responsibility of building technicians and scientists. A research station on a national basis does not exist so far, but much imaginative and useful work is being carried out by several institutes which are either privately sponsored or state-supported. Prefabrication is little favoured; the only system used to any extent at all is described below. Improvement of traditional methods of construction is the general aim, also the development of swift and constantly flowing means of transport for building materials, particularly wall units and concrete. The Germans have readily adapted ideas from abroad, e.g., from Switzerland and Scandinavia and also are aware of development in Russia, knowledge of which is seeping through via the eastern zone.



Rational organization of ideal housing site.

PHASING

IN Hamburg-Sülldorf, SAGA, the Hamburg Municipal Housing Corporation, in co-operation with the Ministry of Housing has almost completed an experimental estate of 469 dwellings. These consist of 54 one-storey old people's terraces (see *Architect and Building News* October 29, 1953, page 516) and numerous two-storey terraces. Each house has two dwellings, the lower one incorporating basement and ground floor, the upper one, first floor and loft. The two dwellings are entered from opposite sides. Apart from the basements which are concreted *in situ* and the pitched roofs, the structures are wholly prefabricated. Ground floor and first floor walls consist of unreinforced steam-hardened light-weight concrete units 8ft 4in high and 1ft 8in wide. The latter dimension determines the grid for the whole plan. When the units are placed in position concrete is poured into the cavities formed by their vertical grooved edges. The external panels, although only 6in thick, are considered to have excellent insulating qualities. Party walls consist of two skins of 6in panels separated by a 2in cavity. Internal load-bearing walls are 7in thick. The 1ft 8in wide prestressed lightweight concrete floor slabs vary in depth. Above the basements which occupy only part of a dwelling's floor area they are 5in thick and at first-floor level 7½in. In all cases permitted tolerances amount to only 5 mm. External rendering consists of (a) a sprayed film of cement slurry; (b) a thrown layer of compo

Sulldorf housing estate, Hamburg. Ground floor structure of two-storey terrace. Right, lifting device for prefabricated units.

rendering and (c) a sprayed top layer of proprietary rendering. Internally, plastering is sprayed as a skin 5mm thick.

The use of tower cranes was ruled out because frequent removal from one pair of terraces to the next would have been cumbersome and costly. They are generally more suitable for large sites with tall blocks. Instead, light travelling portal cranes were tried, sufficiently wide to span not only across the width of a terrace but also to permit on either side the unloading of wall and floor slabs from lorries. The cranes also proved too immobile for this particular scheme and were replaced by smaller specially manufactured lifting devices and two-storey travelling steel scaffolds on rubber wheels. These were used for the application of external rendering.

In order to investigate comparative costs, SAGA built two identical terraces, one prefabricated and one in traditional brick construction. A Hanover Research Institute, which supervised and analysed all operations, found prefabrication 17.5 per cent cheaper and twice as fast. The method of prefabrication was perhaps not particularly remarkable but site organization was impressive, based on what now seems to inspire some German technicians. The "Taktverfahren," or, freely translated, "Precise Phasing," is the organization of site operations on the production system of a factory. All dwellings must be as far as possible repetitive and grouped in parallel blocks. In Sülldorf one house with two dwellings was completed within sixteen weeks and eventually the pace accelerated to four dwellings a day. In another North German town where eight three-storey blocks of flats with smaller wall units than in Sülldorf were erected, completions reached a total of six dwellings a day or one dwelling every 80 minutes. Work progressed in distinct phases, the nature and time of which had been agreed by architects, contractors and operatives well before the date of commencement. Phases which are repetitive and completed within a definite period of time, may be grouped as follows:—

(a) Zero Phase, i.e., preparations prior to Phase 1.
(b) Preparatory Phase, i.e., preparations for any Operative Phase.
(c) Operative Phase, i.e., work on structures, services, finishes, etc.
(d) Dormant Phase, i.e., time required for the hardening

Prefabricated walls and floors in the course of erection.

Reconstruction in West Germany

of concrete, drying of finishes, etc., stoppage through adverse weather conditions.

(e) Reserve Phase, i.e., various works reserved for stoppages resulting from (d).

All phases are numbered: their succession is outlined in a timetable divided into hours and minutes. If one firm is responsible for numerous consecutive phases, a certain latitude may be permitted in the arrangement. In that case, alternative phase numbers in brackets are indicated following the basic number.

Each phase is defined by specifications, assessment of quantities (when required) and drawings. Thus the plan for a basement has to be replaced by approximately six distinct details. The drawing for Phase 2 indicates the lower portions of basement walls, Phase 4 upper wall portions. Drawings for Phases 1 and 3 outline the rational disposition of materials and implements required for Phases 2 and 4. Each operational phase allows for the cleaning and clearing of the operational area for the next phase. A team of labourers, semi-skilled operatives or tradesmen specializes in one particular repetitive phase, e.g., the lower portion of the brickwork in one storey may be handled by one team, the upper portion by another. The composition of one team should remain as far as possible unchanged. Experience tends to show that a team reaches maximum efficiency after repeating a phase at least five times. Below is the excerpt from a typical timetable describing the construction of a concrete basement. The numbers should not be mistaken for those of phases. Actually only about three phases are included. These are described and numbered in a separate document.

PHASING OF SITE OPERATIONS

No.	Storey	Operation	Team	NO. OF HOURS REQUIRED			NO. OF OPERATIONS			Man-time quotient	WORKING TIME		
				Tradesmen	Auxiliary workers	Total	Tradesmen	Auxiliary workers	Total		Day	Hour	Until
1	Basement	Internal and external shuttering	Sch	10	31	41	8	22	30	1.4	Monday	6.00	7.24
2		Internal shuttering and cleaning up	,,	11	33.5	44.5	8	22	30	1.5	,,	7.24	8.54
3		Tea break	,,	4	11	15	8	22	30	0.5	,,	8.54	9.24
4		Internal shuttering	,,	16	49	65	8	22	30	2.2	,,	9.24	11.36
5		Lunch break	,,	4	11	15	8	22	30	0.5	,,	11.36	12.06
6		Partitions, transport	,,	7	20	27	8	22	30	0.9	,,	12.06	13.00
7		Partitions	,,	9.5	28.5	38	8	22	30	1.3	,,	13.00	14.12
8	Above basement	Reinforcements to ground floor slab	S	10	26	36	8	22	30	1.2	,,	13.00	14.12
9	Basement ...	Concreting of walls	B	24	36	60	8	12	20	3	,,	14.00	17.00
10		Break	,,	4	6	10	8	12	20	0.5	,,	17.00	17.30
11		Concreting of walls	,,	32	48	80	8	12	20	4	,,	17.30	21.30
12		Break	,,	4	6	10	8	12	20	0.5	,,	21.30	22.00
13		Concreting of walls and floor slab cleaning up	,,	24	36	60	8	12	20	3	,,	22.00	24.00
											Tuesday	0.00	1.00
14	Ground floor ...	Internal and external shuttering	Sch	13.5	43.5	57	8	22	30	1.9	,,	5.00	6.54
15		Internal shuttering cleaning up	,,	8.5	24.5	33	8	22	30	1.1	,,	6.54	8.00
16		Tea break	,,	4	11	15	8	22	30	0.5	,,	8.00	8.30

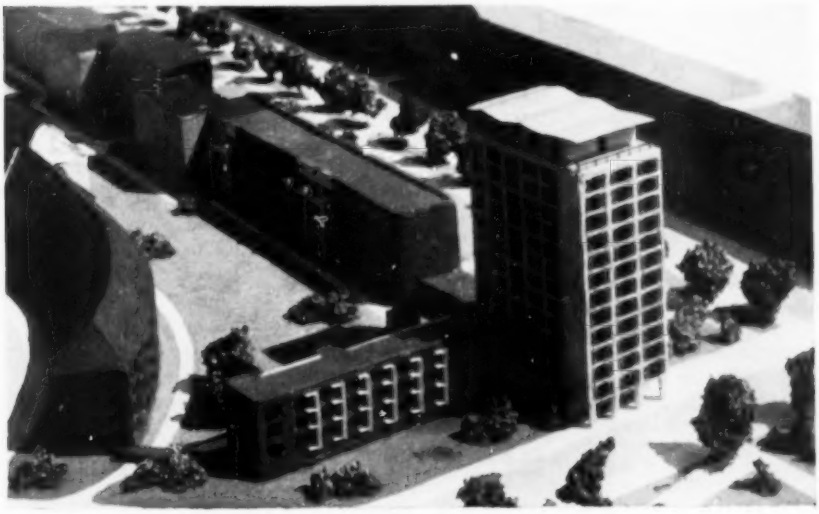
Hohnerkamp estate, Hamburg. Two-storey terrace houses and three-storey blocks of flats built with large lightweight concrete blocks. Here phasing was also used extensively.

Precise Phasing on large sites can reduce costs appreciably; unfortunately, so far, it appears inseparably linked with monotony of site layout. Investigations should be made whether it could not be successfully applied to schemes with blocks placed at various angles to each other.

RATIONALIZED SITE OPERATIONS

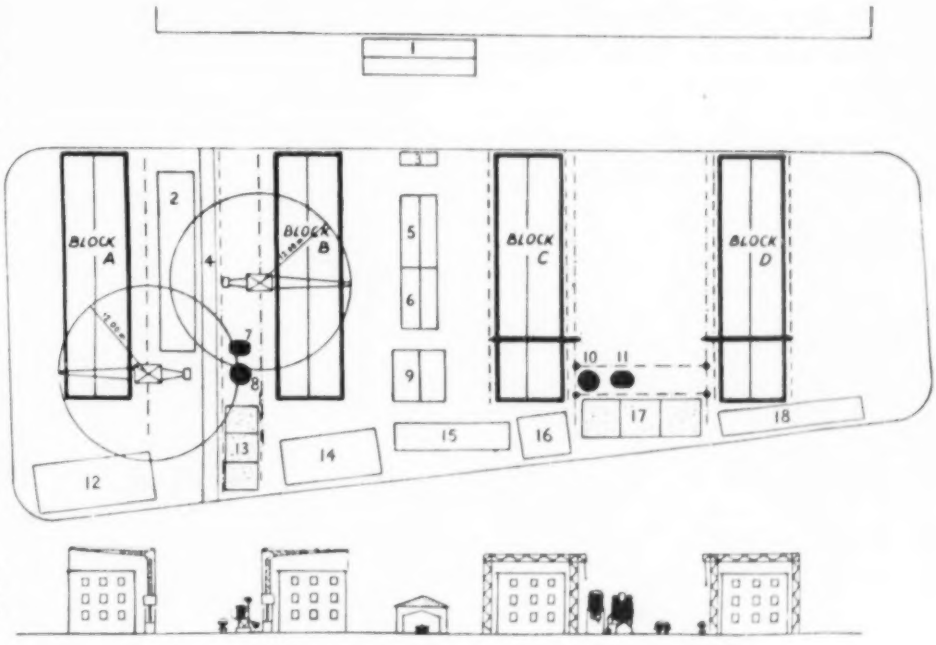
The plan below shows a site where prefabricated units were used. Dwellings had to be completed within 72 days. Tower cranes proved to be as impractical as at Hamburg-Sülldorf. Travelling portal cranes were more successful because of crosswall construction. The four black spots indicate concrete mixers and cement silos, the dot-dash lines, rails. Note the orderly arrangement of materials between and in front of the blocks.

Four tower cranes in use on the site of the new G.P.O. building, Bonn.



This illustration is of a 14-storey point block, 13 storeys of which were built in 10 days with the use of sliding shuttering. Floors were inserted afterwards.

A site in Bavaria using prefabricated units where travelling portal cranes proved more successful than tower cranes.



KEY

12, 14 WALL UNITS
18, 2 WALL UNITS, JOISTS, FILLER UNITS
4 THROUGH ROAD
5 CANTEEN
6 SMITHY
9 CIRCULAR SAW UNDER COVER
10 CEMENT SILO
11 MIXER
13, 17 BALLAST SILOS
15 REINFORCING RODS
16 JOISTS, FILLER UNITS

Reconstruction in West Germany

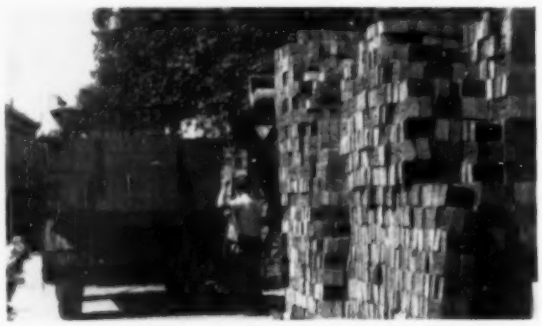
WALL UNITS

THE rationalization of existing building methods has been and is being carefully investigated. It is little surprising that many wall units larger than standard bricks have been developed, when recent investigations into a 3-storey experimental block with basement and a staircase serving two flats on each landing have shown that the costs of the brickwork amounted to 26.2 per cent of total building costs. Rationalization of bricklaying and with it a substantial cost reduction can first of all be achieved through improved working methods. For instance, the bricklayer may use a special implement for the rapid spreading of bedding mortar. Depending on their size, wall units are then positioned with either one or both hands, and sufficient pressure applied to squeeze the mortar into the vertical joints. This method has been practised for some time in the United States, Holland and the U.S.S.R., but only in the latter country does it seem to have been developed to any degree.

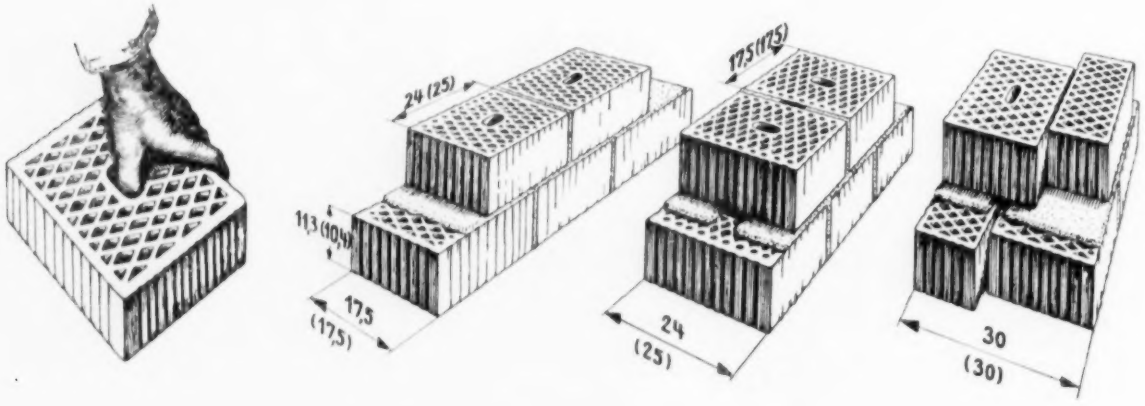
It is by no means of recent origin, but based on the time and motion studies of the Americans Taylor and Gilbreth before the first world war. Taylor concentrated his investigations on shovelling, and Gilbreth on bricklaying. In the first case the best weight that can be carried in the shovel at a time for continued work, was ascertained; then the size and shape of the shovel for carrying different materials were adjusted. In the second case the changes mainly affected the way in which the bricks were supplied to the worker, the height at which they were placed in relation to his body, and the rearrangement of the motions by which he spread the mortar and placed the bricks. The trowel and the mortar-carrier were also constructed according to a new device. The actual number of necessary motions to lay one brick was decreased from 18 to 5.

Taylor's study of shovelling effected an increase in the number of tons of materials handled per man per day from an average of 16 tons to 59 tons. Gilbreth's bricklayers, after being trained, could lay as an average 350 bricks per man per hour; greater responsibility was given to the labourer who arranged the bricks more elaborately for the layer than before, when 120 bricks had been the average. There was an entirely new feature in these operational studies: "taking the job apart" into small elements. An extensive application in practice of these experiments started only about 15 years ago in the Soviet Union.

In the Russian zone of Germany it has become widespread practice. "One-man work" is replaced by "team work"; depending on the thickness of walls, groups of two to five operatives are employed. The bricklayer has the sole function of pressing bricks into bedding mortar. With the exception of the bricklayer, the remaining members of the team are semi-skilled. For 38 cm and 25 cm brickwork (equivalent to our 13½in and 9in work) teams of two operatives are generally preferred. The bricklayer simply places the brick, whilst his assistant, not rarely a woman, spreads the mortar, cuts bricks, etc. During experiments a daily output of 3,600 to 5,600 bricks per team, or 1,800 to 1,600 bricks per head. Such feats, if exceptional, were soon practically applied. In 1951, a production drive, the "Tausender Bewegung" (Operation 1,000) was initiated in the Eastern zone with the aim of achieving the daily laying of 1,000 bricks per bricklayer and other operatives of a team. As a team of two was expected to lay 3,000 bricks, obviously allowance was made for auxiliary workers, e.g., carriers. Thus output rose 75 per cent above the common daily norm of 850 bricks. It has



Perforated clay blocks stacked on the site.



The laying of perforated clay blocks.

become known, however, that the quality of the work suffered and that excessive quantities of mortar were used. Such shortcomings may nullify the advantages obtained from increased output.*

Brickwork can also be rationalized by the introduction of larger units, which were used in Germany as far back as 30 years. These units include perforated bricks and lightweight concrete blocks of dimensions so considerable that the operative must use both hands for laying. In the Rhine basin pumice concrete blocks are extensively used to build structures up to about four storeys in height. In other parts of the country, where distance from the pumice fields of the Central Rhine renders the use of the blocks uneconomical, "Siporex," originating from Sweden, enjoys increasing popularity; it basically contains sand, cement, aluminium powder and pulverized quartz or expanded slate.

The advantages of the various blocks over the standard brick may be summarized as follows:—

(a) Lighter weight per cube foot.
(b) Increased heat and sound insulation.
(c) Simplified and speedier manufacture, transport and site operations.

Their disadvantages:—

(a) Complications when corners, piers and chimneystacks are formed.
(b) Reduced compressive strength.
(c) Possible strain on the operatives.

Below are the finds of a Research Station at Hanover as a result of experiments with various blocks carried out during 1950 and 1951.

* The above details were reported by German technicians.

AVERAGE WEIGHTS & TIMES FOR THE LAYING OF BLOCKS AND THE WORKING BREAKS REQUIRED.

	TYPE OF BLOCK MEASUREMENTS IN MM	WEIGHT OF ONE BLOCK KG	AVERAGE WEIGHT OF ONE BLOCK PLUS MORTAR KG	WORKING TIME PER BLOCK MIN/100		WORKING TIME PER KILOGRM OF BLOCK. MIN/100			HANDLING	OUTPUT DURING 2ND DAY	
				PICKING UP & LAYING	WORKING BREAK	PICKING UP & LAYING	WORKING BREAK	TOTAL		M^2 NO. OF UNITS	WEIGHT IN KILOGRM OF UNITS AND MORTAR
	1	2	3	4	5	6	7	8			
A	STANDARD BRICK 250/120/65	3 87	4 99	11 3	20 2	2 92	5 22	8 14	1 HAND BLOCKS	5 3 865	4319
B	SHORT HOLE BRICK 250/120/104	5 01	6 60	15 2	28 3	3 03	5 65	8 68		10 1 694	3579
C	SHORT HOLE BRICK, NARROW & WIDE UNIT 250/160/80/115	5 68	6 81	19 5	24 4	3 43	4 26	7 69		10 6 695	4276
D	LONG HOLE BRICK NARROW & WIDE UNIT 250/195/95/142	5 34	6 60	18 9	30 5	3 54	5 71	9 25		10 4 548	3619
E	SHORT HOLE BRICK WITH GRIP HOLE 250/170/104	6 80	8 45	18 7	38 8	2 75	5 71	8 46		11 6 500	4253
F	LONG HOLE BRICK WITH GRIP TOOL 250/250/142	11 63	13 41	25 5	27 5	2 19	2 36	4 55		14 4 453	5832
G	RUBBLE CONCRETE HOLLOW BLOCK, SMALL 250/250/219	18 27	21 11	37 1	58 8	2 03	3 20	5 23	2 HAND BLOCKS	16 3 293	6185
H	RUBBLE CONCRETE HOLLOW BLOCK 380/250/219	27 6	29 28	60 9	106 7	2 21	3 87	6 08		16 0 196	5716
J	CEMENT SAND HOLLOW BLOCK 375/250/166	22 2	24 44	50 4	77 7	2 27	3 50	5 77		18 7 209	5107
K	CONCRETE SADDLE BLOCK 333/250/166	18 32	17 75	33 7	36 5	1 84	1 99	3 83		22 8 457	8112

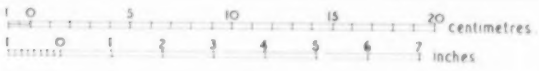
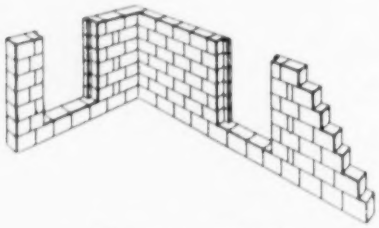



Table compiled by the Hanover Research Station.

Reconstruction in West Germany: Wall Units continued

The laying of the various wall units had to be carried out in reasonable site conditions. Testing of all commercially available units was impractical and choice remained restricted to a series of well-tried products.

The experimental brickwork consisted of a short and long wall with openings at intervals and meeting at a corner. Three bricklayers of average ability were selected from three leading firms. Each man had a different physique, had received a different type of training and had served in the trade for a different length of time. The eldest of the three, a very good tradesman, worked fast and at an even pace. The next one, an intelligent trainee, attempted to adjust his methods to the peculiarities of the various wall units but his output turned out to be rather uneven. The youngest, and most conscientious of the three, achieved



The experimental wall.

first-rate workmanship but proved slower than the other two.

Each of the three bricklayers, who were paid by the hour, spent three working days on the erection of the experimental brickwork; each day consisted of 8½ working hours with two rest periods of thirty minutes each. Auxiliary workers prepared mortar and kept available the blocks to be used. First the corner was built up, next the short wall with one window opening and, last, as much brickwork of the long wall as could be managed within the given time.

For the determination of average output the walls were measured each day on the basis of m², and the number of units laid was counted. The quantity of mortar used was also measured.

Siporex lightweight concrete blocks being laid. Siporex is composed of sand, cement lime, crushed quartzite and pulverized aluminium; the blocks are steam cured to reduce initial shrinkage.

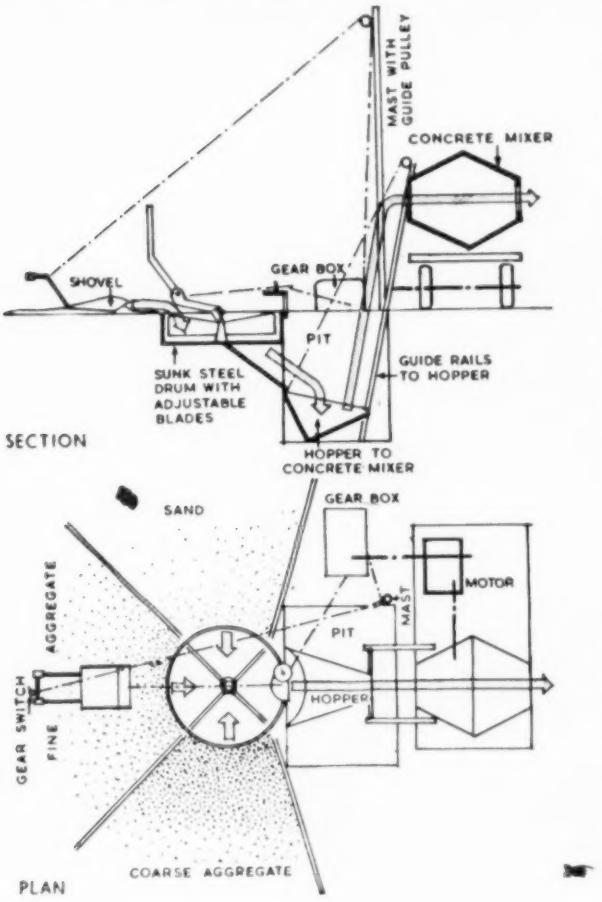
Cross-wall construction with pumice concrete blocks.

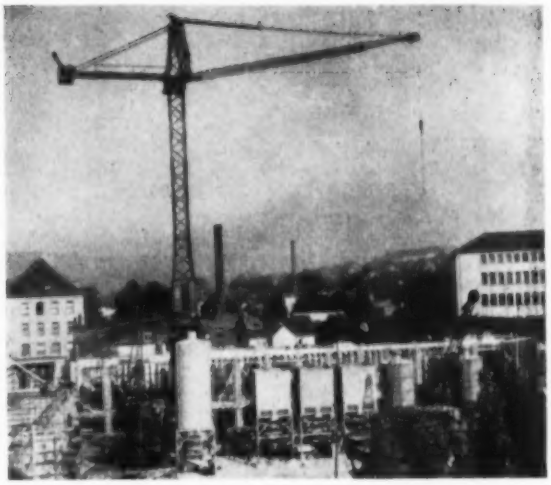
Mixing and Delivery of Concrete and Cement. (See also facing page)

Trailer-mounted cement silo.

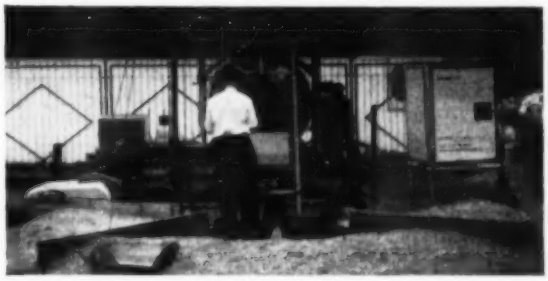
Supply of bulk cement in special containers. A door-to-door service by German Railways.

Cement being pumped into a silo by compressed air.

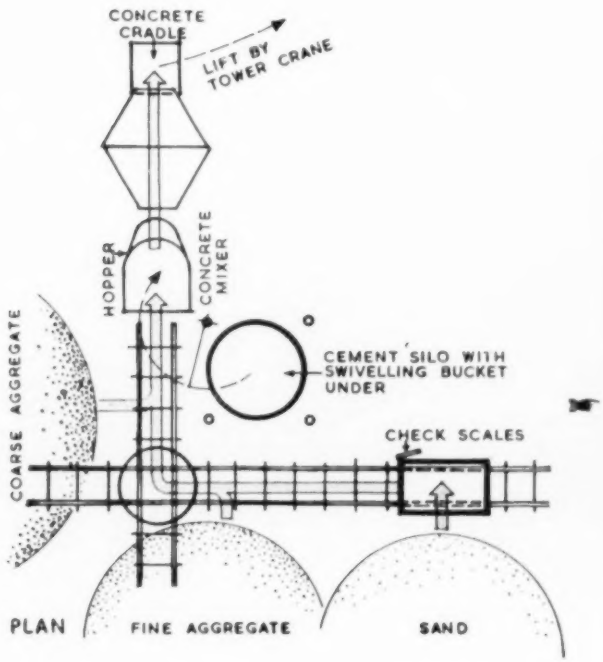




A battery of silos for cement, sand, and aggregate, with tower crane beyond. The mixer is on the left of the cement silo.



The mechanical shovel is pulled by cable and steered by the operative towards the steel drum. The mix may be varied by changing the angles of the blades inside the drum. A cement silo is positioned over the pit.



A gang of labourers first shovels sand into the truck, then fine aggregate and finally coarse aggregate. The ratio is checked with the attached scales. When the mix has been discharged into the hopper of the concrete mixer, cement is added by means of the swivelling bucket underneath the silo. Work on this Hamburg site continued until midnight.

A Structural System in Prestressed Concrete

WORTHING SECONDARY TECHNICAL SCHOOL

WORTHING Secondary Technical School has been designed by the Architects and Building Branch, Ministry of Education, in association with the County Architect's Department, West Sussex, for the Worthing Borough Council. The Council have agreed to use the school as a prototype for the "Intergrid" system of construction. This system has been designed jointly by the Pre-Stressed Concrete Company, Messrs. Gilbert-Ash (the proprietors and erectors of the system) and the Architects and Building Branch, Ministry of Education. Thus from the outset the team comprised the designers, the manufacturers and the erectors of the essential components.

The new building at Worthing is designed as a mixed Secondary Technical School for 300 boys and 300 girls. The building is not yet completed and therefore details of planning and æsthetics are left for an article to be published in the future.

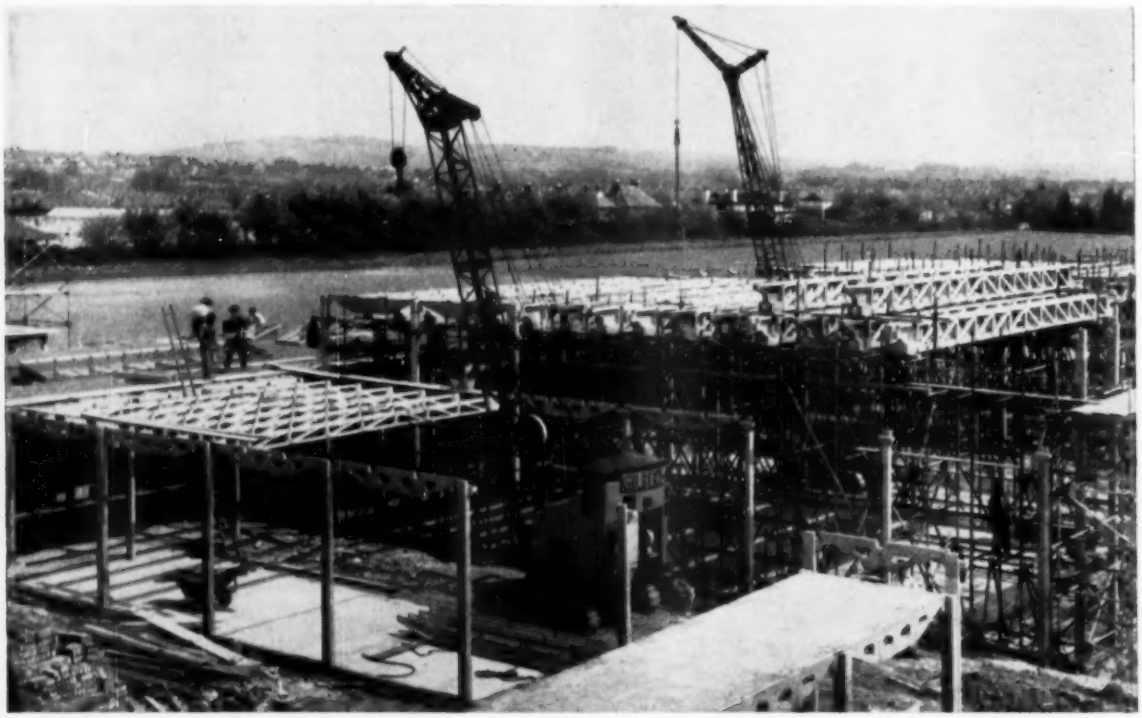
The plan provides accommodation partly in single-storey, partly in two-storey and partly in four-storey construction.

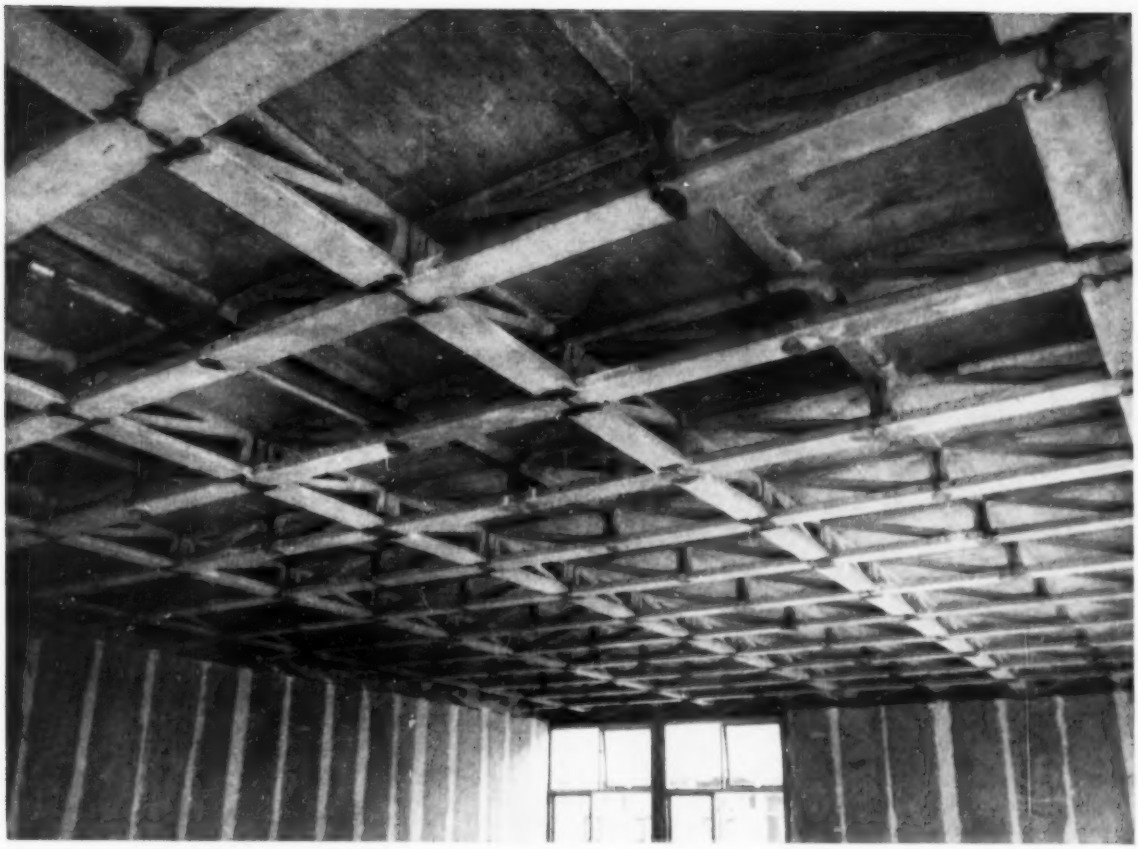
The "Intergrid" method of construction was designed initially for buildings up to four storeys in height. It consists of a light prestressed concrete frame combined with standard structural units, which are cast in the factory under strict control and assembled on the site. The system has been designed for a 3ft 4in module which also governs the planning grid. An important consideration in design was that the techniques of prestressing should be exploited to the full in order to achieve the utmost elegance and lightness of construction consistent with safety.

Before the development team started work a programme of requirements which the system would have to satisfy was drawn up. The system was required, among other things to: (a) be capable of four-storey construction; (b) conform to a horizontal module of 3ft 4in, thus allowing complete flexibility of plan within a 3ft 4in planning grid; (c) conform to a vertical module of 10in and allow flexibility of section, ceiling height, and changes of level in 10in increments; (d) permit spans of at least 30ft under roofs; (e) provide an open-frame construction, making it possible to place outer walls, windows or partitions at will; (f) have a self-centering type of floor and roof construction; (g) have a cladding system erected from within the building, thus eliminating the use of scaffolding; (h) have a full range of internal and external corners without special lengths of cladding slab; (j) have the necessary range of components for changes of level in section; (k) allow for the use of top lights in the roof structure; (l) allow services to pass freely through the horizontal structure between ceiling and roof or floor above (this overall dimension to be 1ft 8in); (m) be entirely of precast units, designed for ease of handling and transport and speedy erection on site; (n) provide a structure as free from maintenance problems as possible; (o) reduce steel consumption to a minimum.

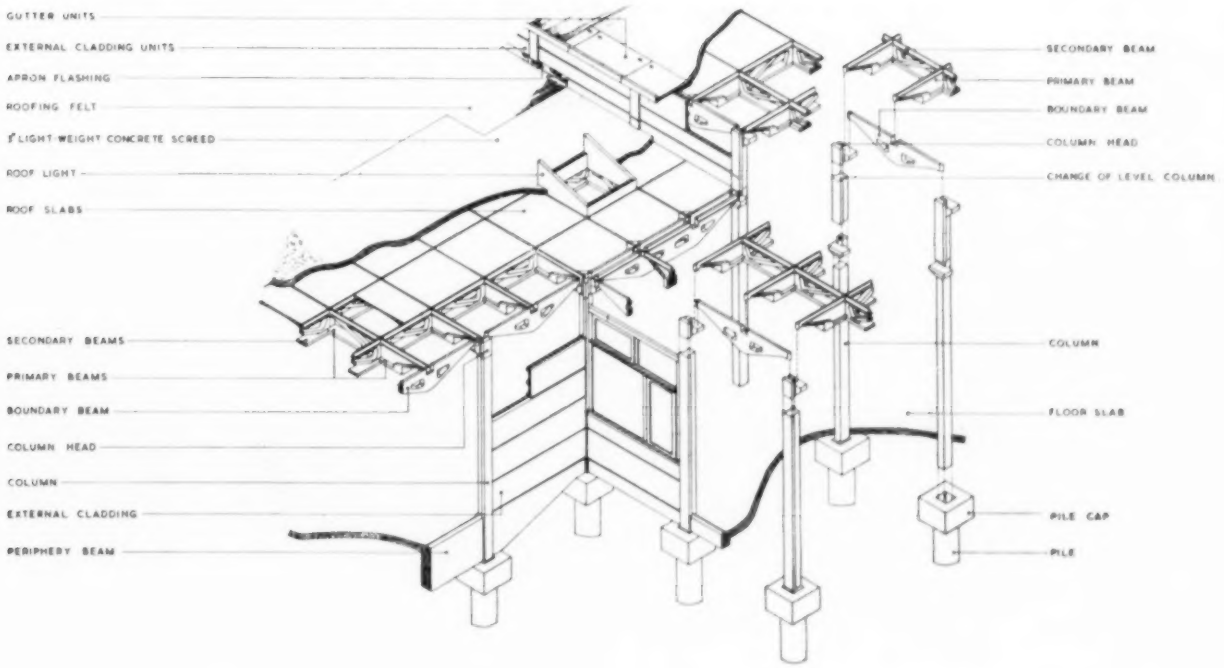
The requirements of the roof and floor structure were also considered and it was decided to develop: (1) an open truss system rather than a hollow slab, because it would allow: (a) a lighter construction; (b) lighter components; (c) the free passage of services in both horizontal and vertical directions; (2) a two-way grillage system rather than an independent beam system, because: (a) each beam would receive support from its neighbours in both directions,

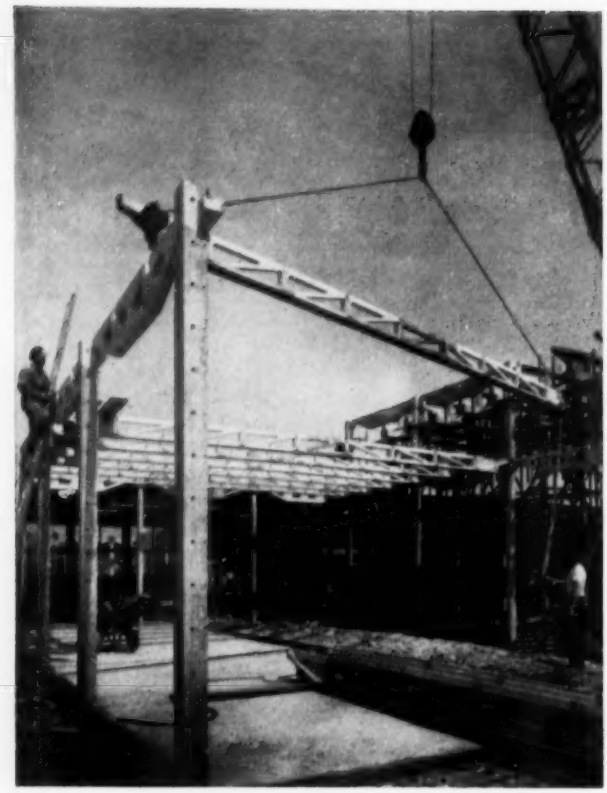
(*Continued on page 20*)

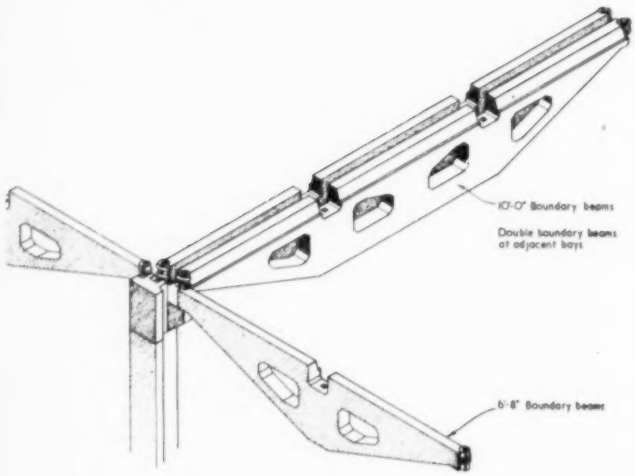




Part of a completed roof structure.







Left, hoisting a precast prestressed main beam into position. Above, boundary beams.

A Structural System in Prestressed Concrete

whereas independent beams act in isolation; (b) it would provide a better distribution of loads; (c) deflection would thus be considerably reduced; (d) a greater margin of safety would be achieved; (e) a rigid horizontal slab was possible from which the necessary horizontal wind bracing could be obtained.

The system

The floor and roof system which was evolved consists of a two-way grillage of post-tensioned beams at 3ft 4in centres in both directions, supported on boundary beams and column heads. The columns are at either 6ft 8in or 10ft centres around the perimeter of each structural bay. Actual dimensions of bays are governed by the needs of the plan, within the limits imposed by the maximum spans which are (primary span × secondary span) 23ft 4in × infinity, 26ft 8in × 40ft 0in, 33ft 4in × 33ft 4in for floors, and 36ft 8in × infinity and 40ft 0in × 40ft 0in for roofs. Subsequent developments in the beam system promise to increase these spans very considerably.

No fixed scaffolding is required in construction. The columns are erected in small, portable scaffold frames. Once the frame is in place, all other components are fixed from inside the building.

Columns

The columns are precast to a standard section—6½in × 4½in overall, with grooved sides—and varying lengths on a 10in module, and are pre-tensioned with four 0.2 diameter wires. There are four main types: three for external walls to carry cladding, including types for internal and external corners, and one type for general internal positions. For multi-storey construction, there is in addition a cruciform type, measuring 6½in × 6½in along each axis.

Ground floor columns are designed for erection in sockets cast in the foundation bases. This school is founded on piles and in this instance the base sockets are formed as pile caps. On the upper floors the columns stand on the column heads of the ground and lower floor columns, and are pin-jointed. All external columns have projecting nibs on each side, and holes cast in at 10in vertical centres for the fixing of cladding slabs and windows. The full range of columns allows for ceiling heights of from 8ft 4in to 18ft 4in and changes of level from 1ft 8in to 10ft all in 10in increments.

Column heads

Mushroom type column heads have been designed to cater for every possible beam-fixing condition which may arise. There are four main types for use with the four main column types. In addition, there is a further range of column heads which provides for changes of level in ceiling structure on opposite sides of any row of columns. These are produced very simply by "stopping off" in the standard production moulds.

Beams

Three types of beam are used to form the floor and roof system: (1) the boundary beams, which are individual in design, and (2) the primary and (3) secondary beams which are both made up of similar types of units.

(1) Boundary beams. The boundary beams surround the perimeter of each structural bay. They are of reinforced concrete, and are cast in two standard lengths, of 6ft 8in and 10ft. They are supported on the column heads, and in their turn support either one or two beam connections.

The centre line of boundary beams is placed 2½in inside the grid line, to allow for a double row of beams at the common perimeter of two adjacent bays, and also to allow

the outer wall cladding of the building to continue uninterruptedly past the boundary beams at each storey height. Where pairs of boundary beams occur they are supported on the same column head. All boundary beams have holes which correspond to the main voids in the rest of the beam structure, to ensure the passage of services.

(2) Primary beams. The primary beams are placed at 3ft 4in centres across the shorter span of each bay. They consist of two solid precast end units 3ft 4in long and a varying number of identical, precast, lattice-type intermediate units, 3ft 4in long and 12¼in deep. These units are assembled and prestressed together on the site before erection, to give beams of multiples of 3ft 4in in span. Jointing is done across the section of the top and bottom booms only: Ciment Fondu is used and is allowed twenty-four hours to set.

The Freyssinet system of prestressing is used, with two-wire anchorage, either four or eight 0.2 diameter wires being used per beam, according to its size and loading. The wires are treated as two loops encircling the beam from end to end: one wire, or one pair of wires, is anchored at one end, passes in a groove round the opposite end of the beam and is stressed and anchored from the first end. The second wire (or pair of wires) repeats the process in the reverse direction. Two types of end unit are used: where the loop is formed of one wire only, the two ends are brought together to be anchored by one two-wire anchorage; where each loop consists of two wires, each pair is anchored separately. The exposed wires in the troughs are then covered with grout.

3. Secondary beams. The secondary beams are made up of units similar to those of the primary beams, but with a projecting web, for self-centering on the flange of the primary beams. They are placed at 3ft 4in centres in the transverse direction, and are assembled unit by unit between the primary beams. After the units are jointed the prestressing wire is passed along the groove in the outer edge of the lower flange of the beam and through a hole left for it in the primary beam; stressing is carried out on completion of each structural bay. This completes the beam grillage, stressed in both directions.

Gymnasium spans

The system as developed in this prototype does not achieve the spans and loadings required for a large gymnasium, therefore the 50ft long gymnasium beams are of slightly different design, the units being stressed together by one ordinary 12-wire Freyssinet cable. The main system has, however, now been further developed to allow for all spans to be erected from the same components, and on future jobs the ordinary roof beams as used elsewhere will be adapted for spans of up to 50ft.

Floor and roof slabs

The floor and roof slabs, which are of solid, unreinforced concrete, are nominally 3ft 4in square, 2½in thick at the edges, 1½in thick at the middle and slightly domed. They are placed in position within the squares formed by the top flange of the beams. When grouted into position they act with the beam system to form a rigid, monolithic horizontal slab. The floor slab is covered with a 1½in screed: the roof covering, over the monolithic slab, consists of a 3in layer of foamed slag concrete, covered with two layers of roofing felt and finished with granite chippings.

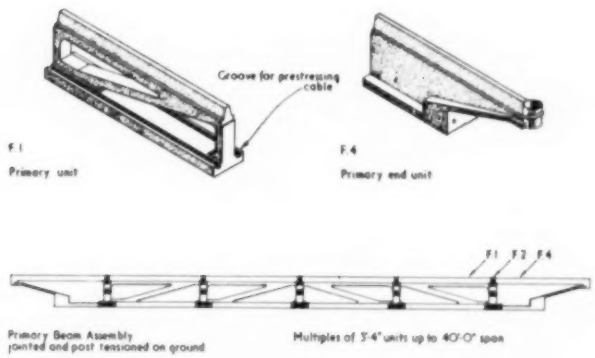
Roof-light kerbs

A series of roof-light kerbs nominally 3ft 4in square are substituted for roof slabs where top lighting is required. These kerbs can be used singly or to form strips of roof lighting in multiples of 3ft 4in in length. A pitched, galvanized steel roof-light frame with a 12in vertical upstand and ventilating light on one side is used in conjunction with these kerbs.

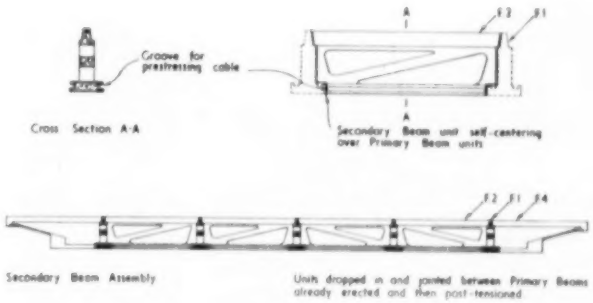
Staircases

In this building the staircase wells were, as an expedient, cast *in situ*. A precast system of construction has now been satisfactorily developed for use with subsequent constructions.

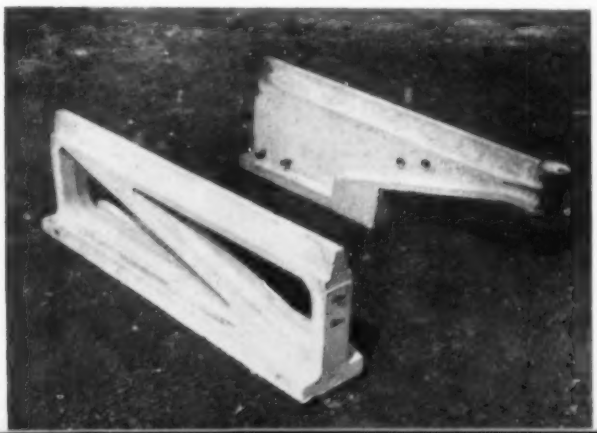
The staircase stringers are precast and prestressed in the factory by the Freyssinet method. Standard, reinforced

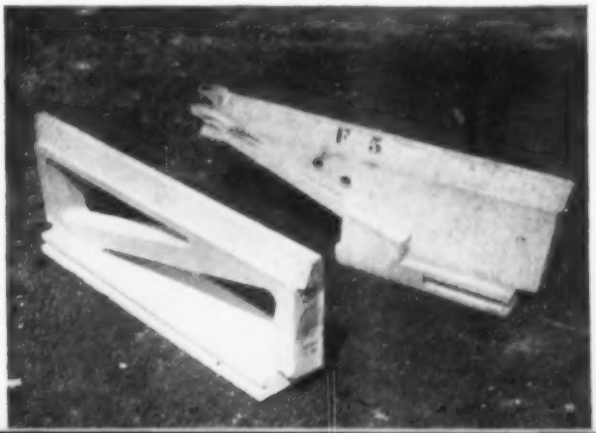


Units for primary beams


Groove for prestressing cable
Cross Section A-A
A
F2
F1
Secondary Beam unit self-centering over Primary Beam units
F2 F1 F4
Secondary Beam Assembly
Units dropped in and jointed between Primary Beams already erected and then post-tensioned

Units for secondary beams





A Structural System in Prestressed Concrete

concrete treads, which allow adjustment for different floor-to-floor heights, are placed in position after the erection of the stringers. These treads also form the landings.

Cladding

External walling is of cavity construction, consisting of an internal skin of 3in, precast panels of Bellrock with a honeycomb finish, and an external skin of precast concrete cladding panels: a 1in cavity is provided between the two skins.

The concrete panels are 1¼in thick with 3in horizontal ribs and edges. They are 6ft 8in or 10ft long, spanning from column to columns, and generally 1ft 8in deep. Panels 10in high are also used so that there is a range of window-sill heights in 10in increments. No special lengths are used at internal and external corners, and all handling in erection is from inside the building. There is a component 5in in height for use at upstands which require flashing.

Surface finishes

Three different types of exposed aggregate finish are used, vibrated into the surfaces of the panels: Derbyshire spar and white cement to produce a white slab, calcined flint mixed with a proportion of shingle to produce a light brownish colour, and black granite in Ciment Fondu. Other surfaces are being developed.

The panels fit into the grooves of the columns and are fixed by means of reinforced concrete pins. Holes in the end ribs of the panels correspond with holes at 10in centres in the column; both sets of holes are lined with grout and a tapered precast concrete pin is driven through both, forming a rigid fixing. The D.S.I.R. test for watertightness was carried out on three sections of walling at the School, each section being subjected to heavy jets of water continuously for six hours, and the results have shown the cladding to be perfectly waterproof.

Eaves

The eaves units provide a projection of 12in over the face of the external wall and a 4½in fascia. The units provide for all corner and abutment conditions and are nominally 3ft 4in in length. They are bedded on to the roof slab and are held down with bolted galvanized steel stirrups which pass under the end units of beams. All rainwater drainage is external.

Windows

A range of timber window, with hardwood opening lights and sills, and softwood frames, has been designed to fit the structural system. They are erected from within the building in the same way as the cladding panels and the same fixing holes are used in the columns.

Ceilings

Ceiling construction is based on the use of asbestos board bearer strips suspended from the undersides of beams by adjustable clips and placed at 3ft 4in centres in both directions. This repeats the pattern of the beam grillage, and leaves empty squares into which panels of the various materials which provide sound absorption, fire resistance and the other physical standards necessary, can be fixed.

Partitions

Throughout this prototype school, precast plaster panels have been used for most of the partitions and linings to external walls. It is, however, also possible to use many other forms of building block.

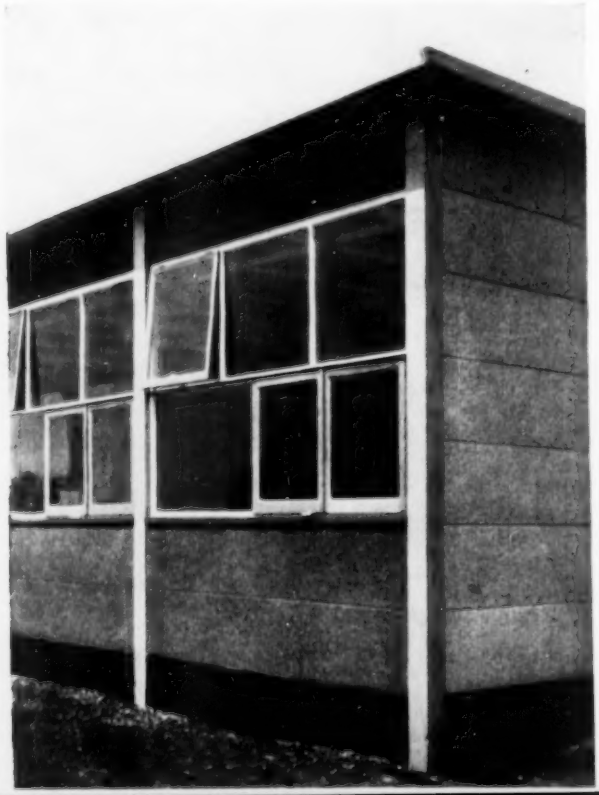
Acknowledgment

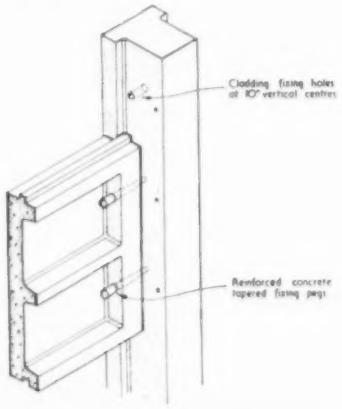
The following persons were connected with the technical aspects of this job:—S. Johnson-Marshall, C.B.E., B.ARCH. (L'pool), A.R.I.B.A. (Chief Architect, Ministry of Education). In association with: F. R. Steele, F.R.I.B.A., F.R.I.C.S., M.T.P.I. (County Architect, West Sussex County Council).

Ministry of Education: W. M. Lee, Dip.Arch. A.R.I.B.A. (Architect in charge); Miss M. B. Crowley, A.R.I.B.A.; J. L. H. Kitchin, A.R.I.B.A.; J. Nisbet, A.R.I.C.S.

Pre-Stressed Concrete Co., Ltd.: A. J. Harris, B.SC. (ENG.), A.M.I.C.E.; G. Isaac, B.SC. (ENG.), D.I.C., A.M.I.C.E.

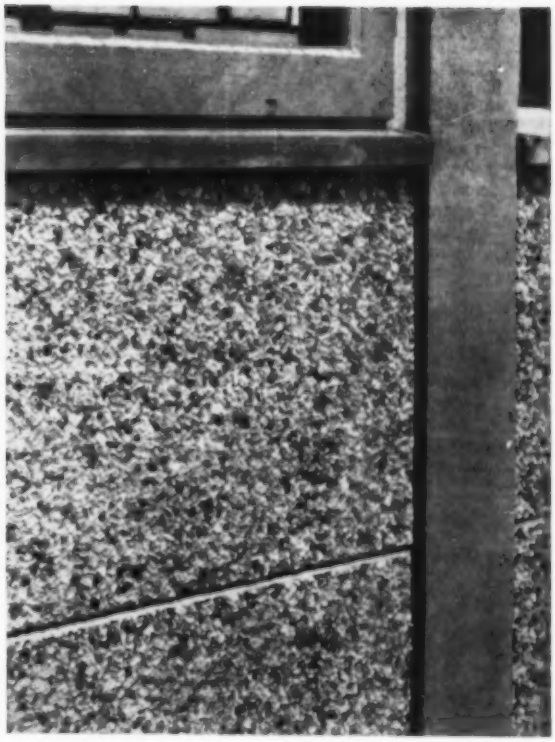
Messrs. Gilbert-Ash, Ltd.: Wilfred C. Ash, B.SC., M.I.C.E., A.M.I.MECH.E.



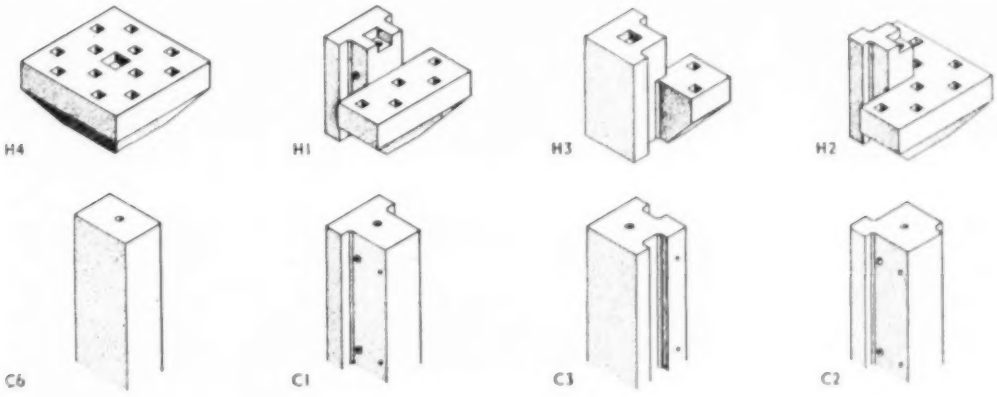


Cladding, fixing and in position.

Illustrating change of level and use of different column heads. Pipes pass through holes in beams.



Black granite and Derbyshire spar cladding panels in position.



Columns and column heads.

Plan of the Worthing school.

QUALIFICATIONS FOR FELLOWSHIP R.I.B.A.

By M. E. TAYLOR, A.R.I.B.A.

I AM proud to be an Associate Member of the R.I.B.A. I stress "to be an Associate." On entering the profession of architecture every student's ambition should be to become an Associate Member; it should also be by means of the Final Examination or through study at a School of Architecture. Anyone who becomes an Associate by either means can hold his or her head high and, like myself, feel proud to belong to such a body as the R.I.B.A. One has achieved the status of Associate Member by one's own efforts and by election has successfully carried out one of the fundamental dicta of the R.I.B.A., which reads as follows: "The R.I.B.A. desires that all those entering the profession should pursue a systematic course of education decided by progressive examinations, the passing of which forms the primary qualification for admission to its class of Associates."

The distinctive feature about the letters A.R.I.B.A. to those engaged in the profession is that they signify that the holder has achieved this distinction by examination. The letters have not been presented as a gift; they have been earned and earned after years of study.

How much more valuable in the eyes of the recipient is a reward for which he has had to work, and work hard, than that which is gained by no personal effort.

Why do so many who could qualify for election to a Fellow not apply for Fellowship? It might be argued that it is because of the additional subscription but this is not by any means the answer which many give when asked this question. It is felt that if they remain Associates their professional brethren know that they have qualified by examination. This means more to them than the change of an "A" for an "F" on their headed letter paper.

It might be argued that the reason for this reluctance has passed years ago and that to-day most of the Fellows have risen from the ranks of Associates. I doubt if many would agree with that statement, but the facts are that in 1950-51 there was a total of 2,018 Fellows, of whom 710 had not been Associates; in other words, a third had obtained their Fellowship by some other means. It is interesting to note that in the same years there were 173 retired Fellows, of whom 81 had not been Associates, the proportion in this case being about half.

It would appear that if matters were allowed to stand as they are, over time all Fellows would become such from the ranks of Associateship.

Why then did the R.I.B.A. Council at their meeting on May 4 agree "to set up a Committee of Council to consider the provisions of the Royal Charters in regard to the qualifications for the Fellowship of the R.I.B.A. and to make recommendations on these matters"?

No doubt the Council realize that if matters stand as they do at the present day, the stigma which still appears to be attached to Fellowship must be killed once and for all.

How does it occur that one may become a Fellow without having to pass any examinations? This is a question many younger members of the profession who have had to obtain their Associateship ask.

In the Supplementary Charter, 1925, provision is made for the Council to "elect and admit as a Fellow any eminent architect who shall have attained the age of 30 years and shall have been engaged as a principal for at least 7 successive years in the practice of architecture and as to whom the Council may resolve that it is desirable to elect and admit him as a Fellow."

Very few will grumble at anyone being elected on these conditions but would, I feel sure, ask if the person concerned was such an eminent architect why he had not considered sitting the R.I.B.A. examinations.

I do not feel that it is at this provision that Associates take exception, but more at the provisions whereby Licentiates are elected and thereafter may become Fellows.

How does one become a Licentiate? The Membership Pamphlet gives the following guidance to anyone wishing to become a Licentiate. "Candidates for admission to the class of Licentiates must be British subjects whose names have been entered on the Register of Architects, must have reached the age of 30 years and must either (a) have been engaged as principals for at least five successive years in the practice of architecture, (b) have been engaged for at least 10 successive years in the practice or study of architecture. The applications must be supported by three Fellows of the R.I.B.A. Applications for admission to the class must be made on the necessary nomination forms and accompanied by working drawings and photographs of buildings."

Having got so far a Licentiate may apply for admission to Fellowship if he is a principal of an architectural department and is the designer of the buildings of which drawings and photographs are submitted. If these are approved the candidate is required to sit the Design portion of the Special Final Examination. The Testimonies of Study are dispensed with and so are all the subjects in Part II—General Construction; Theory of Structures; Hygiene; Specification; Building Materials; and Professional Practice. These are no small undertaking.

Has not the day passed when one could become a Fellow by what is sometimes referred to as this "back-door method"? The answer over 10,000 Associates would give would no doubt be, "Yes."

When this means of entering the R.I.B.A. was approved I have little doubt that there was very good reason for it but times have changed and I feel that the R.I.B.A. have taken a wise step in appointing a committee to consider the qualifications for Fellowship. I am sorry they did not include in their brief the Special Fund, as I feel there is another loophole by which students who are too darn lazy to work for their Intermediate hope to obtain their Final with the least possible amount of work.

The R.I.B.A. Committee set up to consider this question of Fellowship have no easy task before them and yet it is one which must be tackled boldly with one object in view, and that being the future good of this Royal Institute of ours. The past must be forgotten and the decisions must be for the benefit of all concerned in the future.

In view of the reluctance of many Associates to apply for Fellowship, I would suggest that the Committee would be wise if they recommended the discontinuation of entry into the R.I.B.A. by means of Licentiateship. It would be interesting to hear if many still apply by this method. I doubt it, but the thought still lingers in many Associates' minds that it is one means of eventually becoming a Fellow.

Will the Committee be so bold as to suggest that there should be one way and one way only of becoming a member of the R.I.B.A. and that is by passing the Final Examination or by examinations at the Schools of Architecture recognized for Associateship? This, they may claim, is outside their terms of reference, but I feel it should be by this method and this method alone that Fellowship should be gained. That is unless Fellowship is to become a mark of Distinction on different lines than we know it to-day.

Why not make the Fellowship a real Distinction? I would like to see the following words in a future issue of the Membership Pamphlet of the R.I.B.A.:—

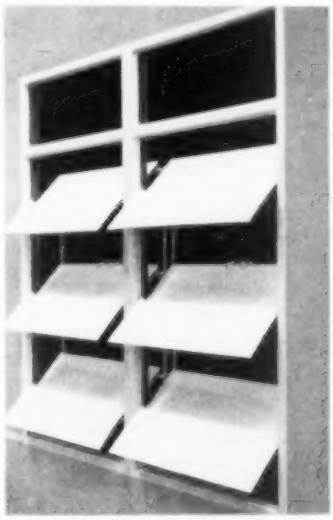
> "The award of the Fellowship, R.I.B.A., is the highest award in Architecture that the R.I.B.A. can bestow. It is solely intended for members of the R.I.B.A. who have made an outstanding contribution in the field of Architecture. Personal applications by candidates will not be entertained."

Would this be too sweeping a recommendation? It will be interesting to read the views of the Committee set up to deal with this important and vital question.

FOR NEW DEVELOPMENTS
IN METAL WINDOW DESIGN
CONSULT

HOPE'S

pioneers since 1818 with the cup pivot, lok'd bar joint, cam opener, 2-point handle and friction hinge



For the Tropics

HOPE'S LOUVRED WINDOW

Hollow steel louvres, lined with insulating material, combat solar heat while admitting 100% ventilation.

Pivoted and coupled for simultaneous operation to any degree of opening.

HENRY HOPE & SONS LTD

Smethwick, Birmingham & 17 Berners St., London, W.1

MEMBER OF METAL WINDOW MANUFACTURERS ASSOCIATION

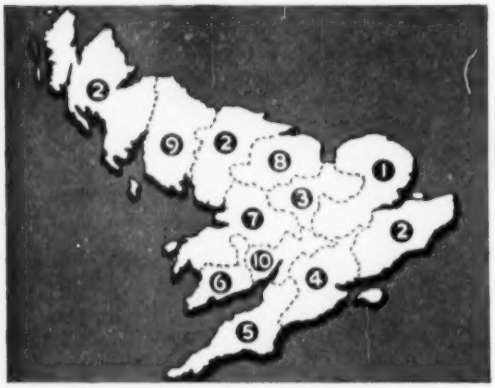
a nation-wide service by

TUBULAR BUILDINGS
UNIMER

these buildings were erected in a few days . . . from stock!

The Unimer Organisation for the supply and service of Unimer tubular steel building components covers the whole nation through 10 Area Distributors. Because of the standardization of dimensions and components, each Distributor carries complete stocks, with buildings "on the shelf" ready for immediate delivery. So through the Unimer organisation, any size of building can be erected anywhere in a matter of days. Unimer components are adaptable to a variety of buildings for factories, offices, workshops, garages, agricultural buildings, etc. and are permanent structures which can be enlarged at any time by the addition of identical units.

Unimer Components are stocked by 10 Area Distributors



UNITED MERCHANTS LTD., Walter House, 418/422 Strand, London, W.C.2

☐ *Send name of my nearest Unimer distributor*

☐ *Send information about Unimer buildings for use as*

Name .....

Firm .....

Address .....

..... *County* .....

COMPONENTS

The Unimer building consists of tubular steel trusses, purlins and sheeting rails, used in conjunction with tubular steel columns, in a wide range of spans and heights.

ACCESSORIES

The Unimer building can be clad with a variety of materials including Asbestos Sheets, etc. and can incorporate dwarf walls of brick or concrete blocks. Either roof or side lighting may be used.

ADVANTAGES

Tube is considerably stronger weight for weight, than sectional steel. Thus the Unimer building, whilst it is as strong, is lighter than a sectional steel building, so the saving in cost of steel, cartage, erection and foundations, make the Unimer building the fastest and most economical method of modern building.

UNITED MERCHANTS LIMITED

WALTER HOUSE, 418/422 STRAND, LONDON, W.C.2

TELEPHONE: TEMple Bar 5883 (3 lines)

1. B. FINCH & CO. LTD., Belvedere Works, Barkingside, Essex. *Phone: VALentine 8888 (30 lines)*
2. UNITED MERCHANTS LTD., Walter House, 418/422 Strand, London, W.C.2. *Phone: TEMple Bar 5883 (3 lines)*
3. A. R. & W. CLEAVER LTD., Advance Works, Wood St., Northampton. *Phone: Northampton 1432 (7 lines)*
4. WM. DIBBEN & SONS LTD., 31 Winn Road, Southampton. *Phone: Southampton 21271 (PBX)*
5. THE DEVON TRADING CO. LTD., Queen St. Station Yard, Exeter. *Phone: Exeter 3042 (3 lines)*
6. THE SOUTH WALES BUILDERS SUPPLY CO. LTD., Wind Street, Swansea. *Phone: Swansea 2186 (4 lines)*
7. E. H. SMITH (WESTHAVEN) LTD., 1 Sherbourne Rd., Acocks Green, Birmingham. *Phone: Acocks Green 0683 (10 lines)*
8. BUXTON DAWSON LTD., 206/208 London Road, Derby. *Phone: Derby 47441 (7 lines)*
9. NORTHERN TUBULAR BUILDINGS LTD. 3/4 Higham Place Newcastle on Tyne. *Phone: Newcastle on Tyne 24011 (10 lines)*
10. THE IRON & MARBLE COMPANY LIMITED, 33/35 Victoria Street, Bristol. *Phone: Bristol 27471 (10 lines)*

Summary of the Interim Report of The National Federation of Building Trades Employers

General Review

The first part of 1954 has seen a continuance of the orderly expansion both in the building industry and in the national economy as a whole which began in 1953. The building industry, operating under fewer restrictions than at any time since 1939, has reached a high level of activity and its output would undoubtedly have been higher still but for the bad weather of the early weeks of the year. Industrial production generally has continued to increase and, if this improvement is maintained, the record output of 1953, to which the building industry made such an important contribution, should be exceeded by a substantial margin. The immediate outlook for the national economy, and therefore for the building industry, seems to be reasonably assured.

The Government's plans for investment include the building of more factories, shops, offices and commercial premises, together with the reconstruction of blitzed cities, while in the background is the road programme, the size of which, presumably, can be varied as circumstances dictate. In addition, although the Government proposes eventually to stabilize the new housing programme at a rate of 300,000 completions a year, including those required for slum clearance, there is every likelihood that 1954 will see the completion of 350,000 new houses, a total which would compare favourably with any pre-war year. Some encouragement is also to be given to the proper maintenance of existing houses and to accelerating the conversion of houses which will be structurally satisfactory for many years yet but which are lacking in amenities or are too big by modern standards.

The future is not, of course, free from uncertainty. Having regard to the continuing pressure for increased wages in industry generally, no one can afford to be complacent about our ability to produce goods for export at a price at which they can be absorbed in the world markets.

In these circumstances, the level of building costs continues to be of paramount importance. It is true that the demand for fixed investment is expected to increase in 1954, partly as a result of the Budget changes and partly as a result of the reduction in the bank rate. Nevertheless, although these changes are likely to promote an increase in the demand for certain kinds of building work in 1954, it is possible that in other sections demand will decline. For example, there are indications that defence expenditure is to be reduced: the tendency of householders to carry out their own repairs, however inefficiently, is not diminishing: equally significant is the increase, noted last year, in competition for contracts, particularly for medium-sized construction work. It is therefore possible that the industry could, in spite of the Government's plans, become less active. If building costs continue high in relation to the general level of prices, difficulties may certainly arise. Provided they are reduced—and there are some headings under which individual builders can make a contribution in this respect—the immediate outlook is very promising. It is, therefore, reassuring to note that the sales of building plant are still expanding and that builders are showing an increasing readiness to apply the results of research and to submit their organizations to careful scrutiny to ensure that any inefficiency is eradicated.

Building Research and Full-scale Trials

Encouraging progress has been made with the scheme referred to in the last Annual Report for developing a definite system of co-operation between building firms and the Building Research Station in determining the practicability of new materials or processes under actual working conditions. The Full-Scale Trials Sub-Committee of the Building Research and Technical Information Committee has given careful consideration to proposals prepared by the officers of the Building Research Station for the conduct of the first of the experiments to be carried out. These will deal with (1) Air-entrained mortars for external rendering and for undercoats in interior plastering; and (2) Zinc oxychloride treatment for walls infected with dry rot. A number of amendments arising out of the practical experience of members were suggested in respect of both these items, and these have been accepted by the officers of the Research Station.

Advisory Service for the Building Industry

It was stated in the last Annual Report that, at the invitation of the Ministry of Works, the Federation had prepared and submitted for approval by the Government proposals for the establishment of an advisory service for the building industry, with the help of an allocation of £20,000 obtained by the Ministry of Works from Conditional Aid Funds. The Federation's draft scheme was subsequently approved by the Government Departments concerned and agreement has now been reached with the Ministry of Works on the conditions under which the Advisory Service will be established and operated. The entire responsibility for operating the Service has been placed on the Federation: it will be run by a Committee of Management appointed by the Federation. The allocation from Conditional Aid Funds will be made available during the three-year period 1954 to 1956, after which it is anticipated that the Service will be fully established and self-supporting.

Building Materials

Reports suggest that supplies of many of the major building materials continue to improve. For example, little has been heard, up to the present, of work being held up on account of shortage of steel, softwood or tiles. On the other hand, bricks are still difficult to obtain in some areas, while cement is again causing concern, particularly in South Wales and Monmouthshire. It will be appreciated that, although stocks generally have been higher than a year ago, this has been due in no small part to the unfavourable building weather which occurred in the early weeks of the year when there was widespread interruption of building work. Now that the industry is again fully in its stride and in view of the heavy programme which lies ahead, it seems probable that the efforts of the manufacturers will be taxed to the utmost.

It is doubtful whether the stability of building materials prices, which was such a marked feature of 1953, can continue throughout 1954. Already the increased railway freight charges are making themselves felt on the prices of home-produced materials, particularly the heavier ones such as bricks and cement—and the latest round of wage increases must, of course, be reflected eventually in costs.

Tendering Procedure and Practice

Whilst considering the reference to the Monopolies and Restrictive Practices Commission last year of various matters relating to the tendering for new buildings in the London Region, the Minister of Works suggested to the President of the Royal Institute of British Architects that the responsible organizations in the industry should together review existing contracting procedure with the aim of developing arrangements which would encourage the proper planning and organization of building work and would, at the same time, ensure a proper measure of healthy competition. After consultation between the Federation, the Royal Institute of British Architects and the Royal Institution of Chartered Surveyors, it was decided to set up a Joint Committee of these bodies. The Report of the Committee was issued in March.

The recommendation which has attracted most attention is that local authorities should follow the lead of Contracting Departments, and of most private building owners, in the selection of the firms to be invited to tender for their work. The Committee was in full agreement with the findings of the Simon Report on the Placing and Management of Building Contracts that "indiscriminate tendering leads to bad building and throws upon the industry an unnecessary burden of time, effort and expense in the

preparation of tenders, and that only by selective competition can the building owner expect a good job carried out by a builder who, having obtained the contract at a fair price, can and will maintain a good standard of work." It accordingly recommended that "competition should be limited to firms who have been carefully selected, according to the size and type of contract, as being capable of, and likely to do, work of the required standard." The Committee proceeded to consider alternative methods of selecting tenderers, with particular reference to the position of local authorities and the need for these bodies to avoid any imputation of favouritism or corrupt practice. It suggested that the Ministry of Housing and Local Government should give a strong lead to local authorities in this matter. The duty of guiding and watching developments in relation to selective tendering and of ensuring that all the recommendations in the Report are kept constantly before those directly concerned and before the general public is to be entrusted to a standing Joint Committee of architects, surveyors and builders.

Government Forms

Following the representations which were made by the Federation last year to the Committee on the Censuses of Production and Distribution, the Federation has continued to urge the Government to reduce to the utmost extent, compatible with its responsibilities in connection with the maintenance of full employment, etc., the amount of form filling required of builders. The Council's representatives on the Ministry of Works' Committee on Simplification of Forms have stressed that the amount of time which a builder has at present to devote to completing official forms is a significant item in building costs. In addition, at the Federation's suggestion, the National Consultative Council of the Building and Civil Engineering Industries has recently appointed a special committee to review the long-term arrangements for the collection of statistics.

Housing

House-builders Registration: With the greater freedom now available to private house-builders the question of the maintenance of proper standards of construction assumes greater importance than has been the case in recent years. It has been reported that in some areas considerable numbers of houses are now in course of construction by interests which are not directly associated with the house-building industry and that the construction of these houses is in some cases such as to discredit the industry in the minds of the general public. The answer which would be given in some quarters to this problem would be to place new restrictions and controls on private house-builders, despite the fact that this would be contrary to the public interest. The answer which the industry itself can give is to afford greater support to the industry's own voluntary scheme for the inspection and certification of houses built to the standard specification of the National House-Builders Registration Council.

In addition to the discussions between officials of the Ministry and of the Registration Council there has also been a meeting recently between the Officers of the Registration Council and of the Federation of Registered House-Builders. At these meetings full replies have been given on behalf of the Registration Council to various criticisms which have been made of the Council's procedure and administration, and the Council of the F.R.H.B. has since confirmed its full support of the Registration Scheme and its intention to do everything possible to implement the constitutional requirement that all members engaged in private house-building should comply therewith.

Labour Relations

The Council of the Federation has given attention to various aspects of long-term policy connected with the wage-structure of the industry. It is appreciated that the present Joint Agreement, administered by the National Joint Council, has served the industry well and is a model of its kind. Nevertheless the development of modern technique and practice may be such as to warrant re-examination of some of the principles embodied in the Agreement and the Federation is giving consideration to some of the main issues arising in that connection.

Discussions on various subjects with the Executive of the Operatives' Federation have continued. In regard to labour productivity the Federation's representatives have stressed the need for further efforts on both sides to extend the working of incentives. It has been suggested to the Operatives that an attempt might well be made to integrate incentives with quality.

The position has, however, been complicated by the Operatives' objection to the development of labour-only sub-contracting; they have expressed special concern about the number of cases where such sub-contractors were unable during the frost to meet their wage-obligations. The Council of the Federation has maintained the view that, while willing to consider all practicable safeguards against cases of abuse, it must also safeguard the position of genuine labour-only sub-contractors in view of the contribution they make to higher productivity.

The conciliation and disputes machinery has continued to operate satisfactorily. There has, however, been a recent increase in the tendency for the different Craft Unions to lay claim to exclusive rights to perform certain operations and it has been necessary to bring pressure to bear upon some of the Unions with the object of securing greater inter-availability as between the crafts. In some cases the Operatives' Federation has reported definite progress in this direction but in other cases the Unions' attitude is still unsatisfactory.

Education and Training

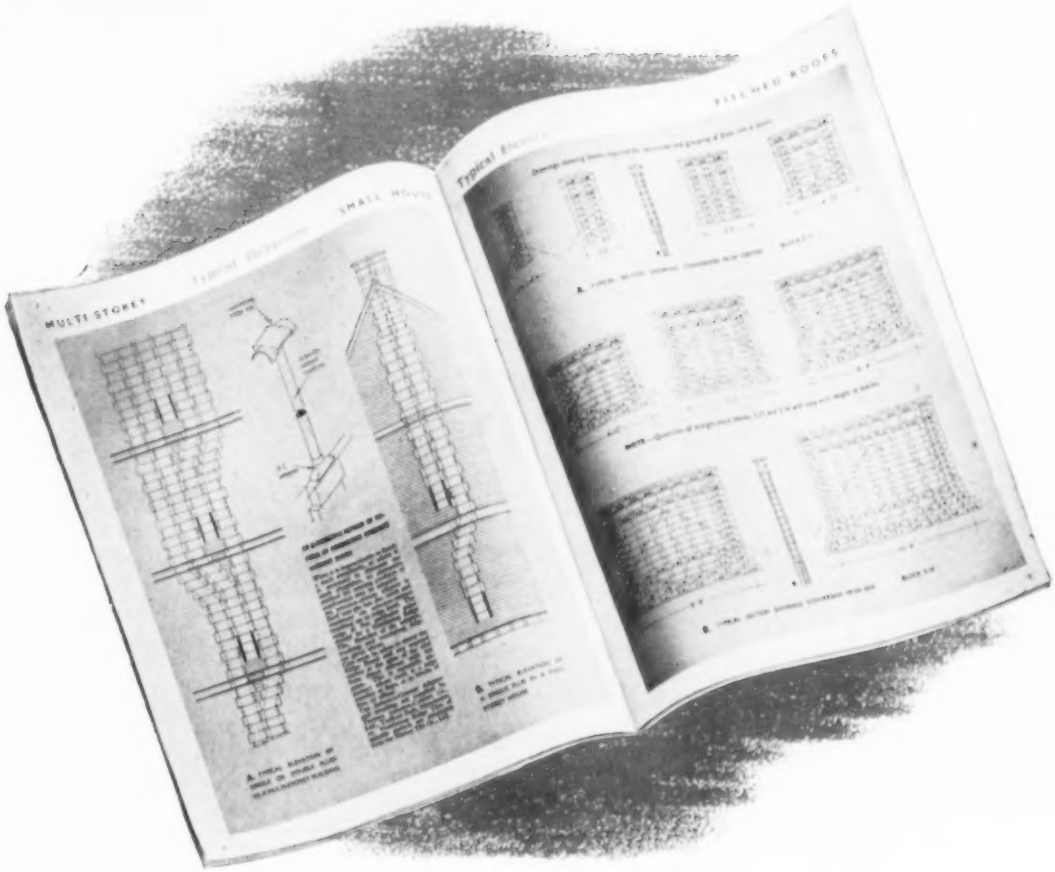
In the field of building education a notable and welcome feature in recent months has been a drawing together of the various bodies which have an interest in this important question. Acknowledgment has been made in previous Reports of the work of the Building Apprenticeship and Training Council of the Ministry of Works which rendered valuable assistance to the industry in the immediate post-war period. The transfer of certain functions from that Council to the National Joint Apprenticeship Board has placed on the Board a responsibility which it was designed, but has not previously been required, to undertake.

While the administration of the apprenticeship scheme is thus brought more closely under the control of the National Joint Apprenticeship Board, responsibility for the standard of the technical qualifications for craftsmen in the industry is shared with examining bodies, particularly the City and Guilds of London Institute. Closer liaison has now been established between the Institute and the Federation and the Board. In the development of new examination courses and in the revision of old ones the Federation is being consulted, so that the views of building employers may be fully represented.

The latest available figures show that during the four months January—April, 1954 the numbers of apprentices registered by the National Joint Apprenticeship Board were as follows: Eastern 331, Liverpool 244, London 295, Midland, 547, Northern 143, North Western 432, Southern 387, South Wales 201, South Western 482, Yorkshire 301.

Training of General Foremen: It is important that employers should take a real interest in the selection and training of their foreman. However excellent a course in general foremanship studies may be, it cannot make a fully qualified general foreman. Much of the technique of supervision can be acquired only through practical experience on the site and the value of training at a technical college can be considerably enhanced if the student is at the same time given an opportunity by his employer to gain this experience by working as an assistant to a senior general foreman.

Arrangements are being made with the City and Guilds of London Institute for the introduction of examinations based on the certificate course leading to the award of a certificate in general foremanship studies. Federation members are recommended by the Council to make it known, when engaging general foremen, that preference will be given to those who hold technical qualifications and can show that they have taken a course of training in general foremanship studies. Such action would encourage men seeking to become general foremen to take a course.



The construction of precast concrete flues for gas fires and ventilation is fully detailed in the Nautilus Gas Fire Flue Block Book

Copies on application

***Nautilus** precast concrete flue blocks*

made by MARLEY

(Registered user of Nautilus Trade Marks Nos. 424,327 & 602,484)

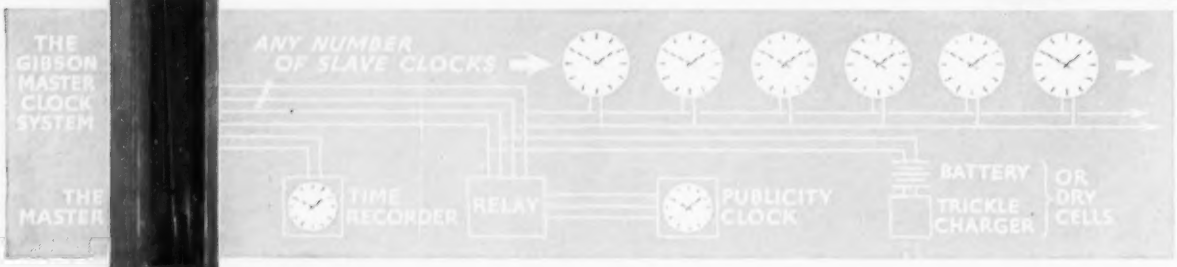
THE MARLEY TILE COMPANY LIMITED

LONDON ROAD · RIVERHEAD · SEVENOAKS · KENT · SEVENOAKS 2251 6

PLAN for CLOCKS

In the newest and best buildings the clocks are regarded both as architectural features and essential amenities; they go in before the walls are plastered. Gibson clocks are being used a great deal in this way, either as individual clocks for one or two offices (worked by small self-contained dry batteries) or on an impulse system

302



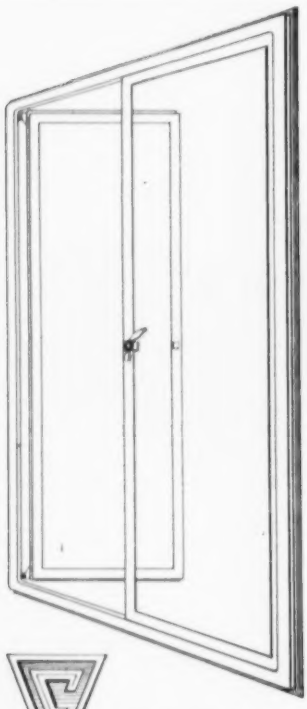
in which one 'Master' controls any number of 'Slave' clocks. This method is very accurate and has the advantage of being independent of power fluctuations. Available designs are good—specific designs can be carried out.

Gibson CLOCKS

are made by **BAUME & CO. LTD.**

1, HATTON GARDEN, LONDON, E.C.1. CHANCERY 4331

304



Admirable as steel is for window-frames, it is a material that needs expert handling to produce the perfect finished article. Clembro Metal Windows come from a firm with 30 years' experience and a nation-wide reputation.

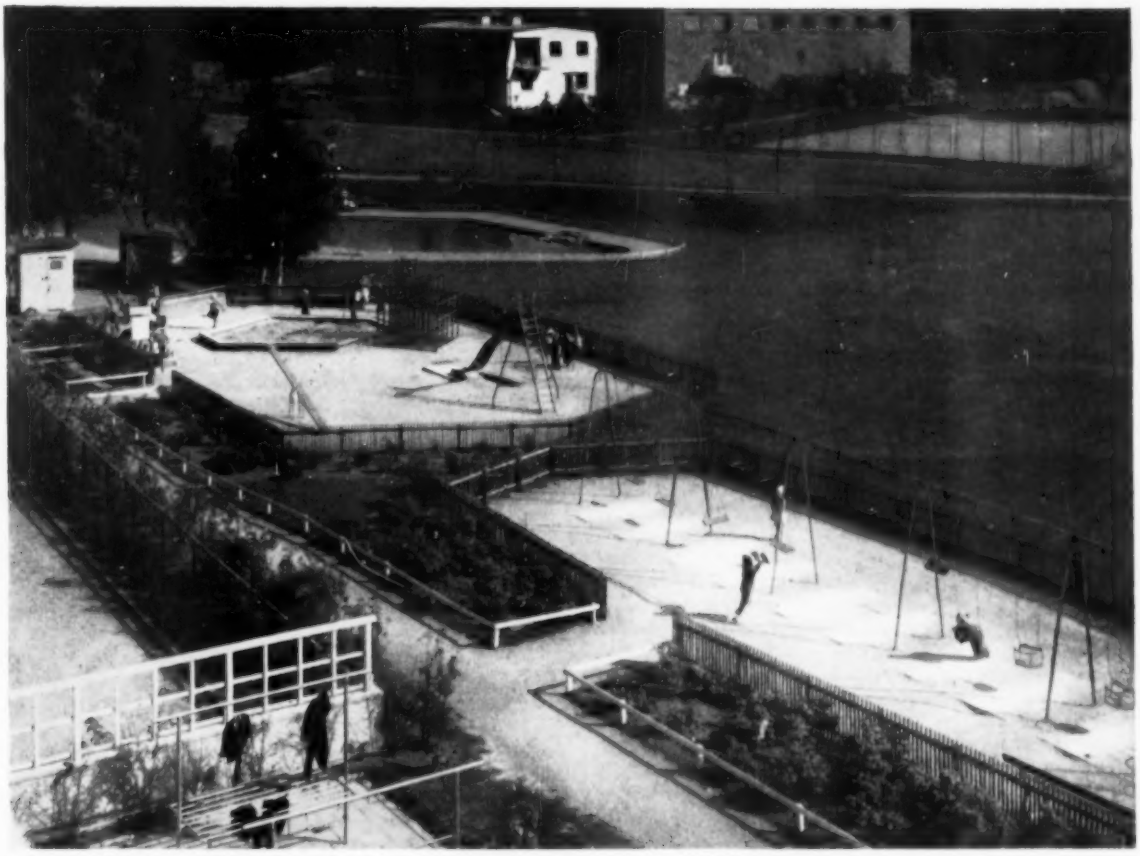
Full Catalogue sent on request.

'CLEMBRO' TRADE MARK

GALVANISED METAL WINDOWS

CLEMENT BROS., HASLEMERE, LTD.

Clembro Works, Wey Hill, Haslemere, Surrey. Phone: HAS 1193/4. Grams: Clembro, Haslemere.



The playground at Enbacken in Stockholm, showing the use of low barriers and planting to segregate different pieces of apparatus.

Playgrounds

3. DETAILS OF THE LAYOUT

The third of a series of articles by GORDON LOGIE

IT is fatally easy when laying out a playground to regard it simply as a question of the placing of so many pieces of apparatus, and to lose sight of the fact that round each piece of apparatus, like so many wasps round a jam-pot, there will be children.

It is far better to think first of the children, and the way they behave at different ages, and then observe how they move in relation to each piece of apparatus, how popular each piece is, what is the maximum number of children who can use it at the same time, what their likely routes are from one piece to another—in other words, to visualize the playground as a living, pulsating organism rather than a static design on a piece of paper.

The first thing which emerges is the vital importance of segregation and dispersal. Even the safest pieces of apparatus become dangerous if they are crowded too close together so that the children get in each other's way and fall over each other. This is particularly the case with moving apparatus such as swings, but it applies also to static apparatus such as slides, jungle gyms and anything that a child can jump off. In the drawing on page 29 the safety clearances are given for common types of apparatus. These are minima and it is desirable in addition to provide additional circulation space between the different pieces.

It is better still if the apparatus can be completely dispersed round the playground. Different types of apparatus appeal to different age groups and it is important to avoid older children interfering with younger ones, or younger ones getting in the way of their elders. It is, of course, not possible, nor would it be desirable, to achieve complete segregation of the different age groups as children vary a great deal both in rates of development and tastes, but if a playground consists of a number of quiet "play pockets" with a large open space in the centre, then the children separate naturally into quiet, absorbed groups and each child can choose the apparatus it likes.

The Stockholm playgrounds are an interesting example of the development of this idea of segregation. The first playgrounds to be built consisted, as indeed does the average English playground to-day, of a number of pieces of apparatus arranged in an open space. Then certain pieces were moved to one side for safety or quietness. For example, the swings in the playground at Bergsgruvan, shown in the last article, are at one side, with a guard rail,

Playgrounds

and the sandpit is at the other side, out of the main line of traffic, while the paddling pool has an enclosure of its own.

In later schemes, such as that above, this segregation has been carried much further, with separate enclosures or groups for swings, ball games, sandpits and fitted apparatus, paddling pools, open-air baths, toddlers' playgrounds and so on. These groups are freely disposed in a landscape park running between neighbourhoods.

Each unit is surrounded by a low, wooden fence or rails with shrubs, trees or grass in between, so that there is a hard-wearing surface on the actual play areas but grass and planting elsewhere. This arrangement solves one of the greatest problems in playground design, the protection of the planted areas from the children. Playgrounds in the past have so often been either bare asphalted spaces without planting, which is practical but inhuman and oppressive; or they have been planted with grass, trees and shrubs which have almost immediately been trampled on and destroyed by the children. The Stockholm parks avoid both these pitfalls and they do it without high fences or other obtrusive safety measures.

Before considering in detail the layout of playgrounds we must distinguish, however briefly, between the outlook and needs of the different age groups who will use them. Although it would be misleading to attempt any hard-and-fast classification of children's activities into age groups, there are certain broad phases of development which should be borne in mind in designing playgrounds.

2-5 years. The first is the nursery school age when children need the more or less constant supervision either of their mothers or play leaders. The best way of dealing with this group is to provide small sandpits near to each block of flats or group of houses.

If provision is made in the playground proper it should be in the form of a quiet toddlers' corner with a sandpit, simple wooden bricks and perhaps a small paddling pool. There should always be a play leader. An alternative is a movable toddlers' enclosure in the grass area of the larger parks with wooden sand boxes and movable hurdles.

Other possibilities for this age group are a small track for riding bicycles and kiddie cars with, if possible, a robustly constructed imitation petrol pump; a miniature see-saw and miniature swings. Children of this age love to walk along low parapet walls or to imagine themselves to be motor cars or trains driving along a pattern in the paving. They also like simple, safe, climbing apparatus like play logs and miniature seats and tables; but, above all, they like sand and water, and if it is possible to arrange for a running stream or miniature beach they will play quietly for hours.

5-7 years. This applies also to the next age group, when children begin to develop both their individuality and their social relations with other children. Group activities such as dancing, building houses with toy bricks, pulling each other round in go-carts, fantasy play such as "mother-and-father," all need the presence of a play leader, as with the toddlers.

Children are much more adventurous at this age and spend a lot of their time climbing and swinging. They also gradually grow into much of the fitted apparatus and this produces the problem of protecting them from the older and more active children who also want to play with the same apparatus. For this reason it is better to provide, if possible, a young children's corner with miniature apparatus suited to their size. The older children will scorn this as below their dignity and the younger ones will be left in peace.

7-10 years. After the early flowering sociability there is often an intensely individual phase when children begin to assert themselves and are so absorbed in their own development and awakening powers that they resent the presence of other children or indeed of the grown ups. Sand and other forms of creative activity are very important such as building with wooden bricks and sailing toy boats, and children should have plenty of opportunity of climbing, jumping, swinging and letting off steam with a football. It is at this age that children become large and strong enough to achieve the full freedom of the playground.

10-13 years. In most children this individual phase gives way to a new period of sociability but a sociability of a peculiar kind. This is the age of "gangs" and each gang feels the need for a "lair" or secret headquarters where plans can be discussed. For this reason the layout should include wherever possible for areas of dense bushes or other semi-wild and secluded corners where the gangs can build their lairs out of branches and old packing cases.

This particular childhood need is almost incomprehensible to adults but it is vital to children at this age and no playground scheme is complete which does not include sufficient space for it. If the children are thwarted the gangs are all too apt to break out into hooliganism, or the gang phase will persist into later adolescence when it becomes more dangerous.

If there is any tendency towards hooliganism, the right course is not to forbid gangs in playgrounds but rather to insist that the leader of each gang registers his gang with the play-leader and marks on a map of the playground the position of the lair. This seems to give that feeling of official recognition needed to give a sense of acting with society rather than against it.

At the end of this period the children grow out of childhood into adolescence and at the same time they grow out of the normal kind of playground. It is then that the "adventure playground" should come into its own.

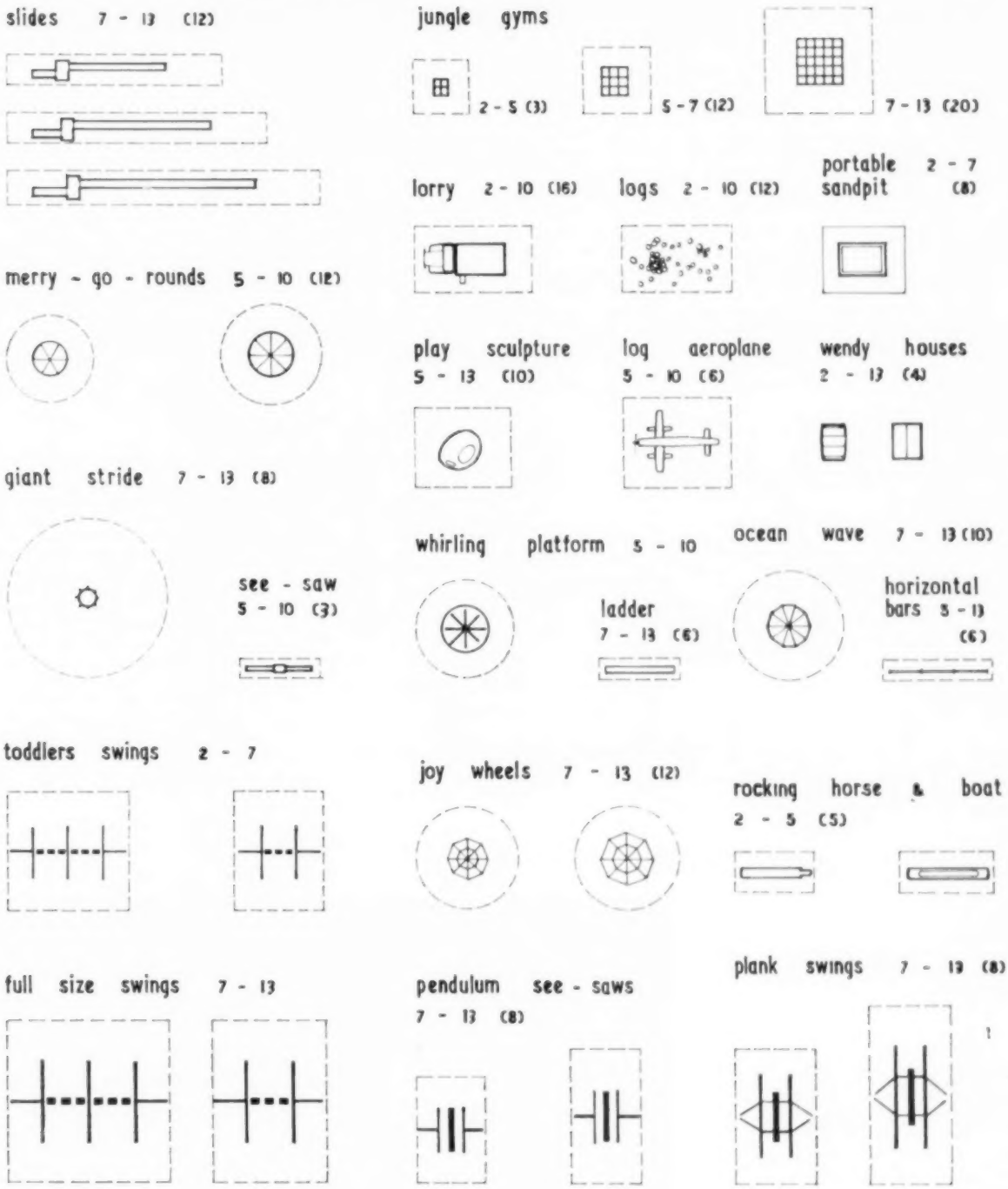
13-15 years. In this type of playground the children are provided with plenty of rough planks, second-hand bricks, nails and tools of all kinds such as spades, hammers, saws and chisels and they are allowed to build themselves underground caves and cellars, huts and even towers, bridges and other more complicated erections. This and the companionship which goes with it provides a real outlet for the restlessness of adolescence and helps to bridge that difficult period between childhood and manhood.

Other activities at this stage are ball games which are very important, as indeed is any energetic physical activity such as boating, cycling, canoeing, roller skating, ice skating and swimming.

It will be clear that many of the activities which are vital to children's balanced development are not possible in the type of playground at present provided in this country. Nor are many of them possible without some form of supervision. For example most of the children up to seven years need more or less constant supervision if they are to be provided with the kind of apparatus suitable to their age, while at the other end of the scale, the adventure playground cannot operate at all without skilled supervision. In between these extremes the main body of playground children between 7-13 can have their play made far more interesting and valuable if there is a play leader.

Parks authorities in this country have so far shied away from the recruitment of play leaders on the grounds of the expense of their salaries (of the order of £400 p.a.) and yet they have for many years been paying a small army of park attendants. The employment of play leaders would lessen the need for the general supervision of the children in the

[Continued on page 30


slides 7 - 13 (12)
jungle gyms
2 - 5 (3)
5 - 7 (12)
7 - 13 (20)
lorry 2 - 10 (16)
logs 2 - 10 (12)
portable sandpit 2 - 7 (8)
merry - go - rounds 5 - 10 (12)
play sculpture 5 - 13 (10)
log aeroplane 5 - 10 (6)
wendy houses 2 - 13 (4)
giant stride 7 - 13 (8)
see - saw 5 - 10 (3)
whirling platform 5 - 10
ocean wave 7 - 13 (10)
ladder 7 - 13 (6)
horizontal bars 5 - 13 (6)
toddlers swings 2 - 7
joy wheels 7 - 13 (12)
rocking horse & boat 2 - 5 (5)
full size swings 7 - 13
pendulum see - saws 7 - 13 (8)
plank swings 7 - 13 (8)

PLAY UNITS

The minimum safety area round each piece of apparatus is shown by a dotted line. In addition circulation space should be provided. The ages at which the apparatus is most popular are given and also (in brackets) the approximate number of children who can use each piece of apparatus at the same time.

A notice board at Stockholm saying "to the playground". ☛

Playgrounds

Playgrounds

Continued from page 28

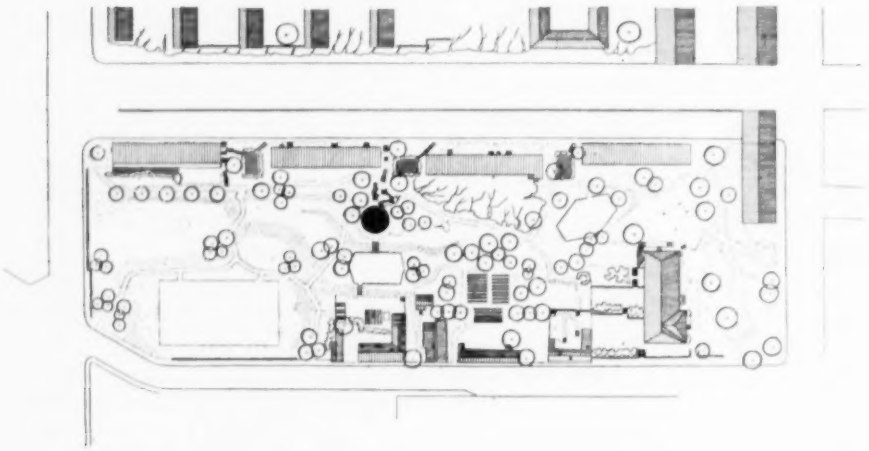
parks and greatly reduce the incidence of wilful damage both in parks and housing estates. It is significant that in Stockholm where there is a system of play parks probably unequalled anywhere else in the world, it has been found worth while to employ over 250 play leaders. There is no doubt that without them, both the range of activities and the popularity and success of the play parks would be gravely impaired.

In selecting play leaders the qualities which should be looked for are a real love for and understanding of children. Being a play leader is quite different from being a teacher; what is needed more than a leader is an older friend; suggestion rather than demonstration; a watchful eye rather than fuss; and quiet self-effacement.

Given a little encouragement most of the children will look after themselves. Children have a strong sense of self-preservation and if left alone they will not take undue risks or attempt feats beyond their powers. But they like to feel that there is an adult in the background to whom they can go for help or protection against the occasional bully.

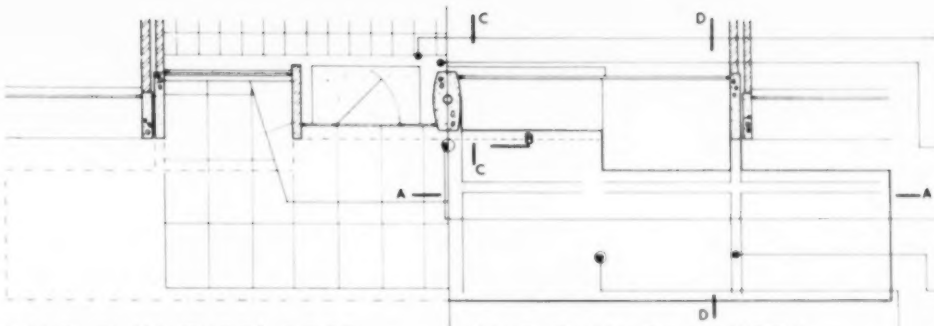
Of course a good play leader will do more than this. She may tell the children stories, organize dances and games, mend toys, give first-aid for the scraped knees and nose-bleeds and generally make herself useful.

For the younger children up to seven, the best play leaders are usually youngish women. For the middle age group personality is more important than sex, but for the play leader of a junk playground a man is usually better than a woman, because the children are predominantly boys and need practical guidance in their constructional problems.



Plan of Bergsgruvan in Stockholm, showing the different elements of the playground and the adjoining four-storey flats. There is a fairly steep slope down from the flats to the group of old farm buildings at the bottom of the site which have been preserved as part of the layout. The black circle is a paddling pool, the hexagons are fitted playgrounds, and the large rectangle is a football pitch. Scale 1:2,500.

A pool for paddling and sailing boats in the middle of a large park in Stockholm.



12" X 12" CORK TILES WITH 1" X 1/8" EBONY STRIP

IN-SITU TERRAZZO

GRATING TO 6" Ø GULLEY

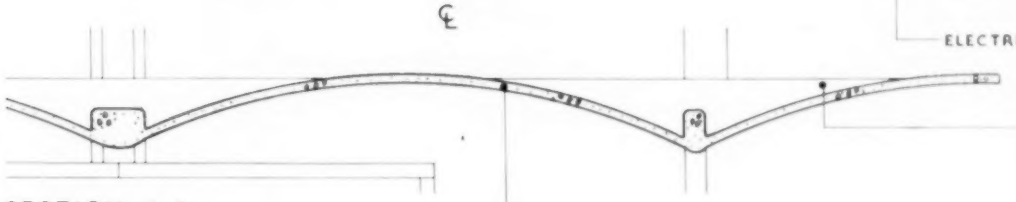
6" WIDE BEAM CANTILEVERED FROM SIDE WALL & DYING INTO CANOPY IN THE FRONT

ELECTRIC LIGHT

HALF PLAN THRO' DOOR

HALF PLAN OF CANOPY

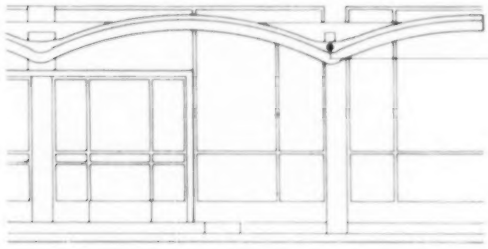
℄



6" WIDE R.C. UPSTAND BEAM LEVEL WITH CROWN

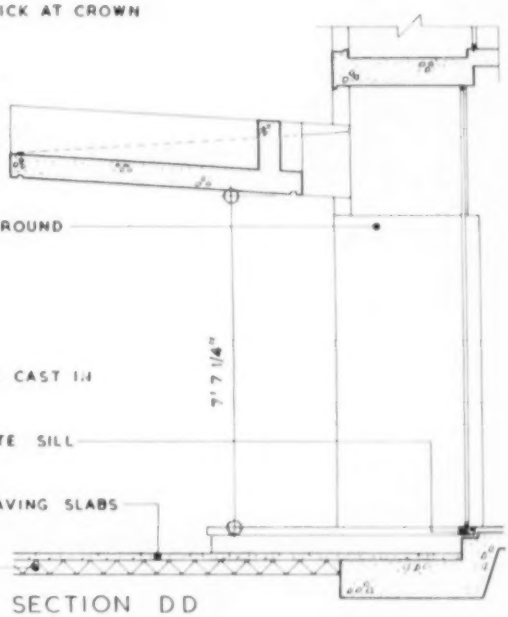
SECTION A A

R.C. CANOPY 3" THICK AT CROWN



CANOPY 6" THICK BELOW BEAM AND OF UNIFORM THICKNESS FROM FRONT TO BACK

HALF ELEVATION



4" TERRAZZO SURROUND TO DOORS

7' 7 1/4"

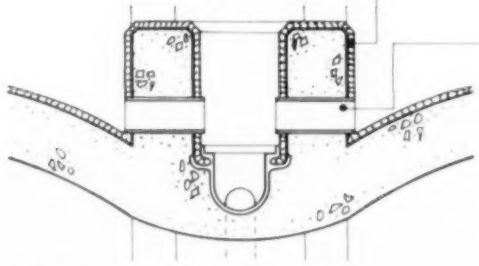
1/2" ASPHALT

2" Ø COPPER PIPE CAST IN

PRECAST CONCRETE SILL

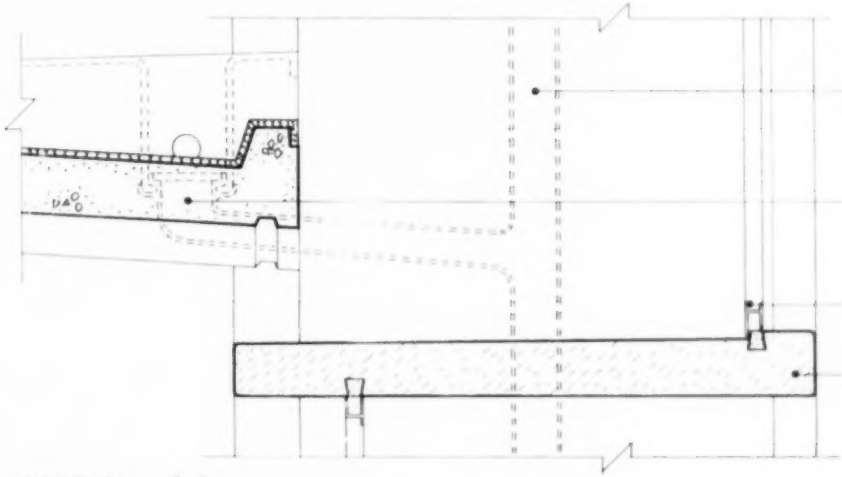
3'0" X 2'0" X 2" PAVING SLABS

4" HARDCORE



DETAIL AT B

SECTION D D



3" Ø R.W.P. CAST IN R.C. COLUMN

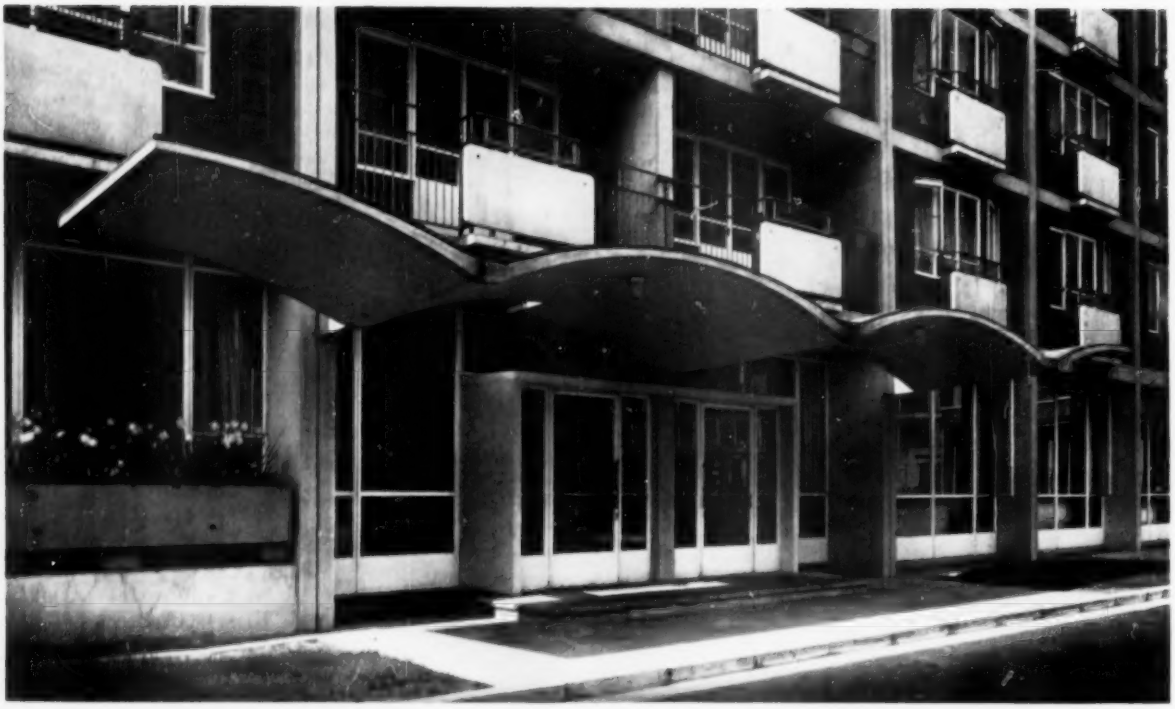
SPECIAL GULLEY UNIT IN CENTRE CANTILEVER BEAM

PURPOSE MADE METAL FANLIGHT

4" TERRAZZO SURROUND TO DOOR

SECTION C C

SCALES 1/8" = 1'0", 1/4" = 1'0", & 1" = 1'0"



ENTRANCE, "IVEAGH HOUSE" FLATS, BRIXTON

ARCHITECTS: ARMSTRONG & MACMANUS

CONTRACT • NEWS •

Notes below give basic data of contracts open under locality and authority which are in bold type. References indicate: (a) type of work, (b) address for application. Where no town is stated in the address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section

OPEN

BUILDING

AMPTHILL U.C. (a) 6 pairs of houses, 1 pair of houses, pair of shops with living accommodation; east side of Queens Road, Saunders Piece Allotments site. (b) H. W. Thompson, 1, Woburn Street. (c) 2gns. (e) July 15.

• • •

BIRMINGHAM C.C. (a) Taking down and rebuilding front elevation of 114-115, and portion of 113, Hockley Hill, including provision of shop fronts to 114-115. (b) City Estates Officer, 141a, Great Charles Street, 3. (c) 2gns. (e) July 9.

• • •

BASSINGBOURN (HERTS). (a) 3 almshouses, High Street, Bassingbourn, near Royston, for Trustees of Elbourn Memorial Charity. (b) Clerk to the Trustees, North End, Bassingbourn, near Royston. (c) 2gns. (e) July 9.

• • •

BOGNOR REGIS U.C. (a) Mess room and weighbridge foundations at the Destructor Works. (b) Engineer and Surveyor, Town Hall. (c) 1gn. (e) July 10.

• • •

BOGNOR REGIS U.C. (a) 20 aged persons' bungalows, South Bersted. (b) Engineer and Surveyor, Town Hall. (c) 2gns. (e) July 10.

• • •

BRISTOL. (a) 30 houses, Headley Park. (b) Dept. D, Messrs. Cunningham and Gibaud, All Saints' House, Exchange, Bristol, 1. (c) 2gns. (e) July 12.

• • •

BUCKINGHAMSHIRE C.C. (a) 4-bay garage at the Highways Depot, Whielden Street, Amersham. (b) Divisional Surveyor, Reynolds Street, Beaconsfield. (e) July 12.

• • •

CHIPPENHAM B.C. (a) 27 houses, London Road site. (b) Borough Surveyor, 10, Market Place. (c) 2gns. (e) July 17.

• • •

CUCKFIELD U.C. (a) 8 houses and 6 bungalows, Box's Nursery, Lindfield (b) Council's Surveyor, Council Offices, Oaklands, Haywards Heath. (c) 2gns. (e) July 9.

• • •

DURHAM C.C. (a) Fire station, Bishop Auckland. (b) County Architect, Court Lane. (e) July 12.

• • •

DURHAM C.C. (a) Farmhouse and 2 steadings, Blue House Farm, Chilton. (b) G. R. Clayton, County Architect, Court Lane. (d) July 7.

• • •

DURHAM C.C. (a) Pair of police houses, New Road Estate, Evenwood. (b) County Architect, Court Lane. (d) July 7.

• • •

ESHER U.C. (a) Contract No. 164. 15 aged persons' bungalows and flats with common room, Faraday Road Estate, West Molesey. (b) Engineer and Surveyor, Council Offices. (c) 1gn. (e) July 9.

• • •

ESSEX C.C. (a) Infants' school, Shelley Estate, Chipping Ongar. Cost approx. £37,000. (b) County Architect, County Hall, Chelmsford. (d) July 10.

how much does our reputation cost you?

It doesn't. Many think you pay for a name. That may be true of some, but certainly not of us.
The experience we have gained in doing the same job well for 100 years enables us to quote low rates.

for built-up roofing it pays you

ENGERT & ROLFE LTD
LONDON E14 EAST 1441
& The Quay Exeter (Exeter 3595)

ER2

MULLEN AND LUMSDEN LIMITED
Contractors and Joinery Specialists
41 EAGLE STREET, HOLBORN, LONDON, W.C.1.
Telephones:
LONDON: CHAncery 7422/3/4
CROYDON: ADDiscombe 1264

FIBRE INSULATION BOARD
"QUITFIRE" impregnated is FIREPROOFED (Class 1 to B.S.476/32 Amdt No. 2) and FUNGUS-proofed or TERMITE-proofed (or all three combined).
Used on Government contracts, Industrial Buildings, Schools etc.
Enquire of your supplier or processors:
S. O. Rudkin & Co. Ltd.
Plantation House, Mincing Lane, LONDON, E.C.3
Tel: MANsion House 4406 (3 lines)

COLEMANOID
WATER PROOFERS AND HARDENERS
THE ADAMITE COMPANY LIMITED
MANFIELD HOUSE, STRAND, W.C.2

KINNEAR SHUTTERS

ORNAMENTAL GATES Wrought Iron

Artistic gates of sturdy construction in a wide variety of designs at very competitive prices.
Write for FREE illustrated leaflet.
MOLESEY SHEET METAL WORKS
(Dept. A.N.), 14, Grove Rd. (off Arnison Rd.), East Molesey, Surrey. MOL 1772.

ESSEX C.C. (a) Schoolkeeper's House at Brittons Secondary School, Hornchurch. (b) County Architect, County Hall, Chelmsford. (d) July 12.

• • •

***GILLINGHAM B.C.** (a) 151 dwellings in pairs and terraces, Twydall/Beechings Estate. (b) Borough Engineer's Office, Municipal Buildings. (c) 5gns. cheque payable to Council. (e) July 26. See page 31.

• • •

GOSPORT B.C. (a) 50 terrace houses, Rowner Estate, No. 3. (b) Borough Engineer, Town Hall. (c) 2gns. (e) July 29.

• • •

HUDDERSFIELD B.C. (a) Home for aged persons, Bradley. (b) Borough Architect's Office, High Street Buildings. (c) 2gns. (e) July 12.

• • •

KENDAL B.C. (a) 80 houses, Hall Garth Estate. (b) Borough Engineer, Municipal Offices, Lowther Street. (c) 2gns. (e) July 14.

• • •

LEEDS. (a) Alterations and extension at Fulford Grange, Micklefield Lane, Rawdon, near Leeds, for the Ernest Aycliffe Home for Aged, Deaf and Dumb. (b) Messrs. Walker and Collinson, 12, The Exchange, Bank Street, Bradford. (c) 2gns.

• • •

LINCOLN C.C. (PARTS OF KESTEVEN). (a) Police house at Belton Lane, Great Gonerby, and a police house and office at Harlaxton. (b) County Architect, County Offices, Sleaford, Lincs.

• • •

LIVERPOOL C.C. (a) Secondary grammar school for girls at New Heys, Heath Road, Allerton. (b) City Architect, Blackburn Chambers, Dale Street, Kingsway, Liverpool, 2. (c) 2gns. to City Treasurer. (e) July 10.

• • •

LIVERPOOL C.C. (a) Erection of microstrainer house with reinforced concrete well and superstructure framework and brick panel walls at Llanforda Filter Beds, Oswestry, Salop. (b) Water Engineer, 55, Dale Street, Kingsway, 2. (c) 2gns. (e) July 12.

• • •

LONDON—HENDON B.C. (a) Demolition of 25 houses in Hendon Park Row, Finchley Road, Golders Green, N.W.11, and erection of 36 flats in 4 blocks and construction of new access roads. (b) Borough Engineer, Town Hall, N.W.4. (c) 2gns. (d) July 5.

• • •

***LONDON—ISLINGTON B.C.** (a) Block of dwellings 3-storeys high (15 dwellings) at Medina Road and Seven Sisters Road, N.7. (b) Town Clerk, Islington Town Hall, Upper Street, N.1. (c) 3gns. (d) July 7. (e) Aug. 16. See page 31.

• • •

MANCHESTER C.C. (a) 62 dwellings in 5 3-storey blocks (Contract No. 215), Mitchell Street, New Cross Area 4. (b) Director of Housing, Town Hall. (c) 2gns. (e) July 21.

• • •

MARCH U.C. (a) 18 houses, Badgeney Road. (b) W. S. Pickett, Architect and Surveyor, Town Hall. (c) 2gns. (e) July 17.

• • •

MELFORD R.C. (a) 10 houses at Assington. (b) Messrs. Hughes and Bicknell, 1, Tunwell's Court, Trumpington Street, Cambridge. (c) 3gns. (e) July 14.

LIGHT STEELWORK
(1925) LTD.
HYTHE ROAD,
WILLESDEN, N.W.10
Telephone: LADBROKE 3674
STEEL STAIRCASES
BALUSTRADES AND
HANDRAILS

ROYAL BOARD
Made in Sweden
The Outstanding All Wood Fibre Hardboard

TRACING
CLOTH & PAPER
for Home & Export Markets
BEST QUALITY
LOWEST RATES
Send us your enquiries
COUSINS & CO (M/C) LTD
82 PRINCESS ST., MANCHESTER, 1.
Phone: CEN. 4674 CABLES: THEOLOGY

Save Bricks by using
TRUE FLUE
STACK CONSTRUCTION
TRUE FLUE LTD
CONVECTOR HOUSE · ACACIA ROAD
ST. JOHNS WOOD · LONDON · N.W.8

STEEL CONSTRUCTIONS FOR EVERY ENGINEERING REQUIREMENT
SHEET METAL WORK.
KENT HOUSE LANE BECKENHAM KENT · PHONE SYDENHAM 6060
J. GARDNER & CO. LTD.

A. & P. STEVEN L TD..
"APS" LIFTS
181 St. James Road, Glasgow, C.4
Tel.: Bell 0356
London: 10 Nicholson St., S.E.1. Tel. Waterloo 4465
Manchester, 1: 12 Charles St. Tel. Ardwick 1391
Edinburgh, 2: 2 North West Circus Place.
Tel. Edin 27998
Birmingham, 18: 63 Hockley Hill. Tel. Northern 1266

MIDHURST R.C. (a) 6 dwellings at Trotton, 8 at Elsted, 12 at Cocking. (b) Council's Architect, "Newstead," Midhurst. (c) 1gn.

• • •

NEWCASTLE-UPON-TYNE E.C. (a) Alterations to provide a woodwork room and domestic science room at Westgate Hill Secondary School. (b) City Architect, Education Section, 18, Cloth Market, 1. (c) 1gn.

• • •

NEW FOREST R.C. (a) 6 pairs of houses at Site No. 53, Langdown Croft, Hythe. (b) Engineer and Surveyor, Council Offices, Lyndhurst, Hants. (c) 2gns. (e) July 12.

• • •

NORFOLK C.C. (a) Office-type police house, Stiffkey. (b) County Architect, 27, Thorpe Road, Norwich. (e) July 15.

• • •

NORTHFLEET U.C. (a) 60 houses, Painters Ash Estate. (b) Engineer and Surveyor, Council Offices. (c) 2gns. (e) July 20.

• • •

ONGAR R.C. (a) 26 houses, Shelley Estate. (b) Engineer and Surveyor, Bowes Field. (c) 2gns. (e) July 26.

• • •

RUGBY R.C. (a) 12 houses, Churchover; 3 at Cosford; 4 at Clifton-upon-Dunsmore and 15 at Newton. (b) Council's Surveyor, 24, Warwick Street. (c) 2gns. (e) July 10.

• • •

SAFFRON WALDEN R.C. (a) 10 houses at Wendens Ambo. (b) Council's Clerk, Council Offices, Debden Road. (e) July 17.

• • •

SCOTLAND—ALVA B.C. (a) Houses, flats, shops and maisonnettes on the housing redevelopment area west of Brook Street. Approx. cost £45,000. (b) Town Clerk, Municipal Buildings.

• • •

SCOTLAND—GLASGOW. (a) 8 shops and 12 maisonnettes, Barholm Square, Garthamlock. (b) Architectural and Planning Department, 20, Trongate, Glasgow, C.1. (e) July 15.

• • •

SCOTLAND—GLASGOW. (a) 4 houses at Wallacewell Road, Balornock and Robroyston. Separate trades. (b) Architectural and Planning Department, 20, Trongate, Glasgow, C.1. (e) July 12.

• • •

SETTLE R.C. (a) Block of 4 houses, Horton-in-Ribblesdale. (b) Engineer and Surveyor, Town Hall. (c) 2gns. (e) July 9.

• • •

SOUTHEND-ON-SEA B.C. (a) Alterations and erection and completion of additions to Southend High School for Boys. (b) Borough Architect, Municipal Buildings. (c) £2. (e) July 12.

• • •

STOCKPORT CORPORATION. (a) Clinic at Brinnington. (b) Borough Surveyor, Town Hall. (c) 5gns. (e) July 24.

• • •

STOCKSBRIDGE U.C. (a) 18 houses, Stubbin Farm. (b) Messrs. Husband and Co., 388, Glossop Road, Sheffield, 10. (c) 3gns. (e) July 19.

• • •

TOTNES R.C. (a) Site works for 6 houses, Dartington. (b) Engineer and Surveyor, Council Offices, Higher Plymouth Road. (c) 2gns. (e) July 16.

• • •

WALLASEY B.C. (a) 30 houses, Digg Lane, Moreton. (b) Borough Architect, Town Hall. (c) 1gn. (e) July 20.

FINNISH LION BOARD · HEINOLA · Manufactured in Finland

Have you a "no main drainage" problem? Let Destrol provide the modern answer at half the cost of septic tanks, cesspits, etc. From £19.10.0.

Write for literature to Destrol Sales Limited
402 Salisbury House, London Wall, London, E.C.2.

ASPHALT WORK TO ALL B.S.S. COVERITE
COVERITE (ASPHALTERS) LTD
PALACE GATES STN. N.22

WEM R.C. (a) 60 houses, Shawbury, and construction of road and sewer works. (b) Messrs. Hind and Brown, District Bank Chambers, Hanley, Stoke-on-Trent.

* * *

WESTON-SUPER-MARE B.C. (a) 54 houses, Coronation Estate. (b) Town Clerk, Town Hall. (d) July 5.

* * *

WIDNES B.C. (a) 20 dwellings, Black Denton's Farm site, Warrington. (b) Borough Architect, Brendan House, Widnes Road. (c) 5gns. cheque payable to Council. (e) July 14.

* * *

WOLVERHAMPTON B.C. (a) 20 dwellings at Beech Close, Oxley, and 6 at Sandy Lane, Bushbury. (b) Borough Engineer, Town Hall; (immediately). (c) 2gns.

* * *

WOODBRIDGE U.C. (a) (1) 16 houses on Peterhouse Estate, and (2) 26 houses on a site adjoining Naunton Road. (b) Surveyor's Office, 17, Thoroughfare. (c) 2gns. (e) July 12.

* * *

YORK C.C. (a) Erection and completion of a row of 6 open-fronted permanent market stalls at Little Shambles. (b) City Architect, 8, St. Leonard's Place. (c) £2. (e) July 19.

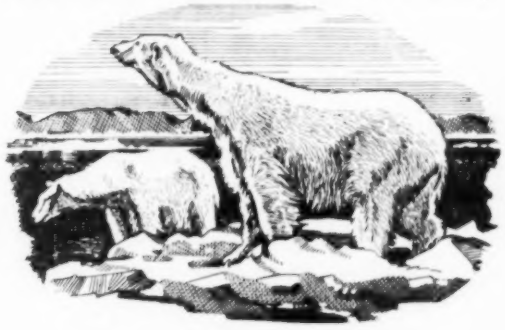
LIGHTNING CONDUCTORS
J. W. GRAY & SON LTD.
13, CASTLE ST., SALISBURY
Telephone: SALISBURY 2750
CHURCH SPIRE RESTORERS

London's Finest new & secondhand Value
ARCHITECTS PLAN CHESTS
Steel & Wood Office Furniture
Filing Cabinets
Safes Chairs etc.
M. MARGOLIS
378-380 EUSTON ROAD LONDON N.W.1

S C SOUNDPROOF CONSTRUCTION
LONDON N.W.2.
ANECHOIC CHAMBERS
SOUND DEADENING & ABSORPTION EXPERTS
WILLESDEN 7187

SCORES OF DOORS TO CHOOSE FROM
Send for our illustrated literature and choose your doors from the largest and most varied stock in the trade. Over 40 designs and 172 items.
BRYCE WHITE & Co. Ltd.
LANGLEY 232 SOUthall 2221
Deseronto Wharf, Langley, Bucks. Also at London, Bristol, Southampton.
312 OAK EXTERNAL FLUSH 19 350 20 111 810 No. 4 OAK

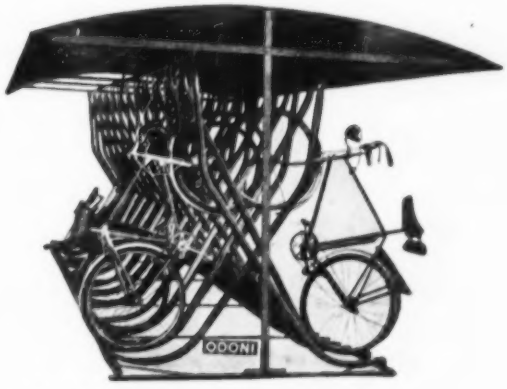
NATURALLY resistant to damp



Just as the Arctic Bear has confidence in his coat to resist the moisture of his element, so Architects and Builders trust Nature's own damp resistant — "Aqualite", the Bitumen impregnated dampcourse.

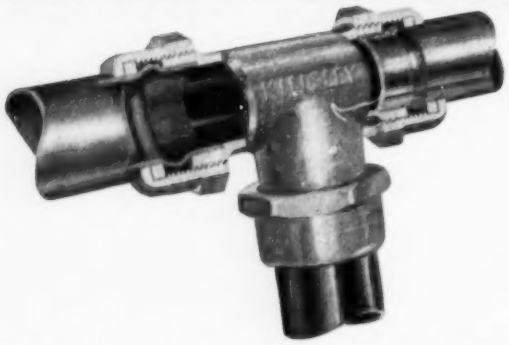
BRIGGS AQUALITE
BITUMEN DAMPCOURSE
"Laid in a minute .... lasts as long as the wall!"
WILLIAM BRIGGS & SONS LTD. DUNDEE.
BRANCHES THROUGHOUT THE UNITED KINGDOM

PARK YOUR CYCLES
THE ODONI WAY
(Regd. Trade Mark)
Types to suit all possible requirements. Single or Double sided, for indoor or outdoor use. Horizontal or Semi-Vertical.



Write for full details to Sole Manufacturers and Patentees —
ALFRED A. ODONI & Co., Ltd.
Salisbury House, London Wall
LONDON, E.C.2. Tele { phone Monarch 8638/9 grams Odoni Ave. London
(Works: London N.W.10.)

COPPER PIPES NEED—



LOOK at the cross section—metal to metal joint with no loose rings, cones or ferrules, self seating by means of swage or circular ridge—DOUBLE GRIP CANNOT SLIP!

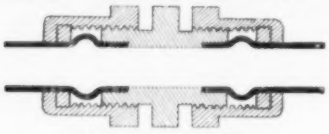
★ **Be safe use Kingley :—**

ABOVE GROUND with B.S.S. 659/1944 Copper Tube, and

BELOW GROUND with B.S.S. 1386/1947 Copper Tube.

KINGLEY

MANIPULATIVE JOINTS
THAT WON'T PULL OFF



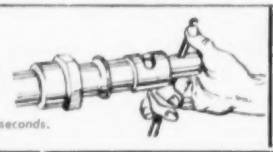
British Patent No. 596673

Less expensive than alternative methods of jointing—Easy to make in three simple operations.

★ Prompt Delivery.

★ Universally approved by Government Departments, Water Works and Local Authorities, etc.

1 *Swage or circular ridge made with fool-proof tool in a few seconds.*



2 *The fitting seats itself against the swages producing 100% efficient joint.*

3 *Nuts tightened and joint completed, each operation a matter of seconds!*

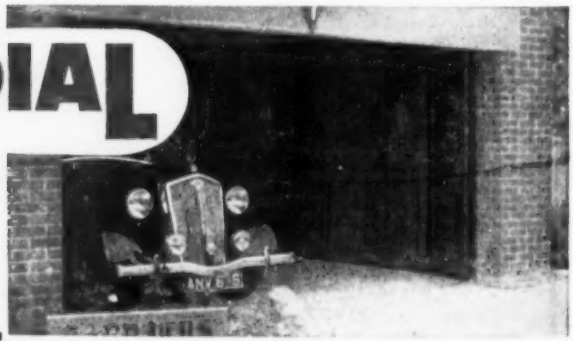
For full particulars and illustrated catalogue write to :—

KINGS LANGLEY ENGINEERING CO. LTD.
KINGS LANGLEY · HERTS
TELEPHONE : KINGS LANGLEY 2215-6 TELEGRAMS : CHAMPION · KINGS LANGLEY

ELLARD
ESTATE SLIDING DOOR GEAR

ELLARD "Estate" Sliding Door Gear has again been specified for a large housing estate: the People's Houses, Canterbury, Kent. "Estate" Sliding Door Gear offers maximum economy in use of space. For easy access and efficient action, garage doors should be fitted with ELLARD "Radial" Sliding Door Gear. The illustration below shows a typical domestic garage with sliding doors running on ELLARD "Radial" Door Gear.

ELLARD RADIAL



ELLARD Sliding Door Gear has been specified for flats and housing schemes by: London County Council; Canterbury and Peterborough Corporations; Eston, Mexborough, Rushden, Sawbridgeworth and Wellingborough U.D.C.s; Essington and Sedgefield R.D.C.s; and for British Railways Housing Estates, Southall; Coronation Bungalows, South Shields; Kytes Settlement Estate, Watford; Newton Aycliffe and Stevenage New Towns.

CLARKE ELLARD ENGINEERING CO. LTD.
Works Road, Letchworth, Herts. Tel.: 613/4

B.M.J.

Meeting Modern Building Standards

WITH AN APPROPRIATE RANGE OF INEXPENSIVE FIREPLACES

To meet the particular requirements of the new, medium size homes now being erected, Bratt Colbran have planned a range of inexpensive Fireplaces which it is felt will be greatly appreciated by architects. All are designed with an eye to size, proportion and detail to ensure conformity with present-day trends in decoration. A booklet illustrating typical examples will be sent on request.

Suite No. 3117 with 18" New Heaped Fire.

BRATT COLBRAN

Make a Fine Art of the Fireside

All designs may be supplied with the traditional 'Heaped' Fire or with the New 'Heaped' Fire (as illustrated), the continuous-burning version of this well-known grate.

BRATT COLBRAN LIMITED, 10 MORTIMER STREET, LONDON, W.1 Tel: MUSEUM 9411

Whatever your transport problem

The answer to every transport problem is in MOTOR TRANSPORT — the weekly newspaper for all road transport users. Every Friday it brings you a wealth of new ideas and up-to-date information including—news of the latest technical and commercial developments in the whole road transport field; advice on new vehicles, equipment and forthcoming legislation . . . and news of what others are doing to cut operating costs. All this and much more is in MOTOR TRANSPORT, the wide-awake road transport newspaper. It is specialized information like this that helps to keep the wheels turning. Whatever *your* transport problem, MOTOR TRANSPORT supplies the answer. Read it *every* Friday! Order from your newsagent, or take advantage of the postage-saving offer below.

Introduction to a specialist—POST NOW

MOTOR TRANSPORT

— keeps you on the right road

ABN

To: Iliffe & Sons Ltd., Dorset House, Stamford Street, S.E.1.

I wish to take advantage of your trial offer of 52 issues of MOTOR TRANSPORT for which I enclose only 17/6d, postage being paid by the publishers (Normal subscription 26/- including postage).

Name .....

Address .....

.....

.....

If preferred, order from your newsagent, every Friday, 4d.

OFFICIAL ANNOUNCEMENTS

APPOINTMENTS • CONTRACTS • TENDERS

Rate 1/6 per line, minimum 3/- *Close for press 1st post Monday for following Thursday Issue*

APPOINTMENTS

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is excepted from the provisions of The Notification of Vacancies Order 1952.

GOVERNMENT OF NORTHERN IRELAND

MINISTRY OF FINANCE—
DIRECTORATE OF WORKS

ARCHITECTURAL ASSISTANTS

APPLICATIONS are invited from Architectural Assistants with recognized training and fair experience for unestablished posts in the Chief Architect's Branch. The employment will provide useful experience for those seeking to obtain professional qualifications. Successful candidates will be eligible for consideration for permanent and pensionable posts as vacancies arise and for promotion to a higher grade on their obtaining full professional qualifications.

The inclusive annual salary scale (which is at present under review) is £351 rising to £628. The starting pay of candidates who have passed the R.I.B.A. Intermediate Examination will be £495. Entry points for other candidates will be fixed in relation to their ages, e.g., £351 at age 21—£440 at age 25 or over.

Preference will be given to candidates who served in H.M. Forces in the 1914-18 or 1939-45 wars, provided that such candidates are, or within a reasonable time will be, able to discharge the duties efficiently.

Candidates who are invited to attend for interview will be recouped cost of railway and steamer fares at minimum rates.

Applications, giving date of birth and full details of training and qualifications, should be sent to the Director of Establishments, Ministry of Finance, Stormont, Belfast. [8028

WALTHAMSTOW COMMITTEE FOR EDUCATION.

ARCHITECT'S DEPARTMENT.

APPLICATIONS are invited for the following permanent appointments in the office of the Architect to the Committee, Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S. CHIEF ASSISTANT ARCHITECT at a salary of £785 rising by increments of £25 to £860 per annum (Grade A.P.T. VIII of National Scales).

Applicants must be Associate Members of the R.I.B.A. or hold an equivalent qualification and have had considerable experience in a similar post of design, construction and contract administration with a local authority. Experience in maintenance of buildings and control of staff would be an advantage.

ARCHITECTURAL ASSISTANT at a salary of £520 rising by increments of £15 to £565 per annum (Grade A.P.T. II of National Scales).

In addition a London weighting of £30 if 26 years of age and over, or £20 per annum age 21 to 25, is payable for both posts.

Forms of application should be obtained from and returned to the Borough Education Officer, Town Hall, Forest Road, Walthamstow, E.17, within three weeks of the appearance of this notice. [8098

LONDON COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

VACANCIES for temporary Architectural Assistants (up to £721) and Architects Grade III (up to £862 10s) with experience in working drawings and specifications for alterations, adaptations and improvements. Particulars and application forms, returnable by 30th July, from Architect (AR/M/3), County Hall, S.E.1. (852.) [8097

LONDON COUNTY COUNCIL

ARCHITECT'S DEPARTMENT

VACANCIES for ARCHITECTS in Schools and Housing Divisions. Salary to £721.

Particulars and application forms from Architect (AR/EK/A/3), County Hall, S.E.1 (374). [0141

APPOINTMENTS—contd.

LEYLAND URBAN DISTRICT COUNCIL.

SURVEYOR'S DEPT.

APPOINTMENT OF JUNIOR TECHNICAL ASSISTANT—ARCHITECTURAL SECTION.

THE appointment is temporary and for a minimum period of two years, salary up to Grade II £520-£565, according to experience and qualifications.

Applicants should have obtained practical training and experience in an Architect's or Builder's office and be capable of preparing working drawings and undertaking some quantity work, the commencing salary will be fixed according to experience.

The appointment will be subject to the National Joint Council Conditions of Service, to the passing of a medical examination, to the provisions of the Local Government Superannuation Act, 1937, and to termination by one month's notice in writing by either party. Canvassing is prohibited. Candidates must disclose whether to their knowledge they are related to any member or senior officer of the Council.

Applications, stating full name and address, date of birth, full details of training (scholastic and professional), qualifications held, past and present posts and salary and details of previous experience, together with copies of two recent testimonials, should be sent in suitable endorsed envelopes, so as to reach me not later than first post on Tuesday, 6th July, 1954.

T. K. CLAYTON,
Clerk of the Council.

Council Offices,
LEYLAND, Lancs.
24th June, 1954. [8102

SALOP COUNTY ARCHITECT'S DEPARTMENT

SENIOR ASSISTANT ARCHITECT required. Salary Grade A.P.T. IX (£840-£960 p.a.). Post pensionable. Applicants must be Registered Architects, preferably Members of the R.I.B.A.

It is expected that housing accommodation will be available to a married man obtaining the post; alternatively, a separation allowance of 30s per week will be paid for a maximum period of six months.

Conditions of appointment and forms of application from County Architect, Column House, London Road, Shrewsbury, returnable with three testimonials by 12th July, 1954 [8086

BOROUGH OF BURY ST. EDMUNDS.

APPOINTMENT OF
ASSISTANT ARCHITECT—GRADE A.P.T. VI OR VII.

APPLICATIONS are invited for the above superannuable post in the Department of the Borough Engineer & Surveyor at a salary in accordance with either Grade A.P.T. VI or VII, according to qualifications and experience.

Duties will include the design of new houses and other buildings, as well as the supervision of a Direct Labour Organization constructing Council Houses and the maintenance and upkeep of other Corporate Property.

Housing accommodation will be made available if required.

Applications endorsed "Assistant Architect" and stating age, whether married, qualifications and experience, together with names of three referees, to be delivered to the Borough Engineer and Surveyor at the address below not later than Monday, the 19th July, 1954.

RICHARD R. HILES,
Town Clerk.

Borough Offices,
BURY ST. EDMUNDS. [8105

COUNTY BOROUGH OF EAST HAM.

ESTIMATOR, Grade Va, £650-£710.
ENGINEERING ASSISTANT, Grade V, £620-£670.

London Weighting is paid in addition. Salary in excess of the minima may be paid according to qualifications and experience.

Subsistence allowances may be granted over a reasonable period to persons appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and application forms, returnable by 15th July, 1954, from the Town Clerk, Town Hall, East Ham, E.6 [8107

APPOINTMENTS—contd.

GLAMORGAN COUNTY COUNCIL

ASSISTANT COUNTY ARCHITECT

APPLICATIONS are invited for the above-mentioned post from Registered Architects who are either Fellows or Associate Members of the Royal Institute of British Architects.

Salary—Scale F Joint Negotiating Committee for Chief Officers of Local Authorities, namely:—
£1,350 × £50—£1,600.

Candidates *must* have had considerable practical experience in the administration of either a County Council or a County Borough Architect's Department which includes a Direct Labour Building Section, and in the design, construction and maintenance of all school and college buildings, and other types of county buildings.

Age limit 50 years with extension for war service, etc. Further particulars (which define age limit) and application forms obtainable from the County Architect, Glamorgan County Hall, Cardiff, to whom they must be returned in appropriately endorsed envelopes not later than 17th July, 1954.

Canvassing will disqualify.

RICHARD JOHN,
Clerk of the County Council.
[8087

BOROUGH OF HARROW.

BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT.

(ARCHITECTS' SECTION.)

APPLICATIONS are invited for the undermentioned appointment:—

ARCHITECTURAL ASSISTANT, A.P.T., Grade IV. Salary £580-£625 per annum, plus London "weighting." The duties include the preparation of drawings and specifications, and supervision of works on new buildings and works of maintenance and repair.

The appointment will be subject to the provisions of the Local Government Superannuation Acts; to the passing of a medical examination; and to the National Joint Council's Scheme of Conditions of Service.

The Corporation are unable to assist in obtaining housing accommodation.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than Thursday, 22nd July, 1954.

D. H. PRITCHARD,
Town Clerk.

Town Clerk's Office,
Harrow Weald Lodge,
Harrow,
Middx. [8104

CHAPEL-EN-LE-FRITH RURAL DISTRICT COUNCIL.

APPOINTMENT OF ARCHITECTURAL ASSISTANT

APPLICATIONS are invited for the post of ARCHITECTURAL ASSISTANT to work under the direction of the Council's Engineer and Surveyor. Candidates should be able to prepare house designs and working drawings, and Bills of Quantities in accordance with the appropriate Code, and also be able to measure up and settle the interim and final certificates on building contracts.

Candidates should be qualified by examination of the Royal Institute of British Architects or alternatively of the Royal Institution of Chartered Surveyors (Quantities Sub-Division).

The salary will be according to APT. Division Grade VI (£695-£760). The successful applicant will be required to provide a car for which the appropriate travelling allowance for a car not exceeding 10 h.p. will be paid.

The Council will, if required, provide housing accommodation, as soon as possible.

Applications on forms obtainable from the Engineer and Surveyor, Council Offices, Chapel-en-le-Frith, via Stockport, to be sent to the undersigned not later than 10th July, 1954.

L. JAGGER,
Clerk of the Council.

Council Offices,
Chapel-en-le-Frith,
Via Stockport.
23rd June, 1954. [8094

APPOINTMENTS—contd.

BRITISH ELECTRICITY AUTHORITY.

MIDLANDS DIVISION.

ARCHITECTURAL DRAUGHTSMEN are required in the Civil Engineering Section of the Construction Department at Wolverhampton. N.J.B. Service conditions, superannuable appointments, salaries within Schedule D, Grade 5, of the Agreement, £567-£671 per annum.

Applicants should have had a sound technical education and practical experience in the layout and design of large buildings, canteens, office blocks and similar constructions, preferably associated with generating stations. Appropriate qualifications an advantage.

Apply, quoting vacancy number 697MD, on form AE6, available from the Establishment Officer, 53, Wake Green Road, Moseley, Birmingham, 13, by 17th July, 1954. [8108

CONTRACTS

METROPOLITAN BOROUGH OF ISLINGTON.

TENDERS are invited for the erection of a Block of Dwellings three-storeys high, containing in all 15 dwellings, at MEDINA ROAD AND SEVEN SISTERS ROAD, ISLINGTON, N.7.

The building will be of brick construction with concrete floors.

Applications for Bills of Quantities and Tender Forms, accompanied by a deposit of Three Guineas (cheques made payable to the Islington Borough Council), must be received by the Town Clerk, Islington Town Hall, Upper Street, London, N.1, by not later than 7th July, 1954.

Deposits are returnable on receipt of a bona fide tender, or the return of all documents not later than 12th August, 1954.

Tenders are to be delivered to the Town Clerk by 10 a.m., 16th August, 1954.

The Council do no bind themselves to accept the lowest or any tender.

H. DIXON CLARK,
Town Clerk.

21st June, 1954. [8099

BOROUGH OF GILLINGHAM.

TWYDALL/BEECHINGS ESTATE—151 TRADITIONAL UNIT-TYPE DWELLINGS.

PROPOSED STARTING DATE—AUGUST, 1954.

TENDERS are invited for the erection of 151 BRICK-BUILT TRADITIONAL TYPE DWELLINGS of simplified design in pairs and terraces on the Twydall/Beechings Estate, Gillingham.

Persons desirous of tendering may obtain copies of the Bills of Quantities, Specification and Form of Tender and may inspect the drawings and Conditions of Contract at the Borough Engineer's Department during usual office hours on and after the 5th July, 1954.

Applications should be accompanied by a cheque for five guineas (£5 5s) made payable to Gillingham Corporation. This sum will be refunded on the receipt of a bona fide Tender not subsequently withdrawn and on the return of all the documents issued.

Tenders in plain sealed envelopes, endorsed "Tender for 151 Dwellings Twydall/Beechings Estate," must be delivered to the undersigned by not later than the first post on Monday, 26th July, 1954.

The Council do not bind themselves to accept the lowest or any Tender.

FRANK HILL,
Town Clerk.

Municipal Buildings,
GILLINGHAM, Kent.
30th June, 1954. [8106

EDUCATIONAL

I.A.A.S.

FORTHCOMING EXAMINATIONS.

THE Incorporated Association of Architects and Surveyors will hold the following examinations during the week beginning 15th November, 1954.

QUANTITY SURVEYORS SECTION:
Intermediate grade (Relegations only).
Final grade—Part I (Relegations only).
Final grade—Part II.
Direct Final grade (Relegations only).

BUILDING SURVEYORS SECTION (Including Municipal):
Intermediate grade (Relegations only).
Final grade—Part I (Relegations only)
Final grade—Part II.
Direct Final grade (Relegations only).

The examinations will be held in London, and at selected provincial centres. Applications from candidates for permission to sit, made on the prescribed form, must be received not later than Monday, 23rd August, 1954.

Full information on application to the General Secretary, I.A.A.S., 75 Eaton Place, London, S.W.1. [8103

EDUCATIONAL—contd.

CITY OF LEEDS EDUCATION COMMITTEE

LEEDS COLLEGE OF ART

Principal: E. E. Pullee, A.R.C.A., F.S.A.E., F.R.S.A.

School of Architecture and Town Planning

Head: F. Chippindale, F.R.I.B.A.

THE following courses are available for the Session 1954-55:—

ARCHITECTURE—Diploma Course five years full-time R.I.B.A. Final Exemption.

Part-time five years R.I.B.A. Intermediate Exemption course.

Part-time three years R.I.B.A. Final course.

TOWN PLANNING—Pre-Diploma course one year part-time.

Diploma Course full-time one year and one year part-time, T.P.I. Final Exemption Diploma course,

or

Three years evening T.P.I. Final Exemption course (open to architects, surveyors, engineers, geographers and economists).

LANDSCAPE ARCHITECTURE. Three years evening course leading to the I.L.A. Final.

Further details of course, enrolment, etc., available from the Clerk to the School, 43a, Woodhouse Lane, Leeds, 2. [8095

MISCELLANEOUS SECTION

RATE: 1/6d. per line, minimum 3/-, average line 6 words. Each paragraph charged separately.

BOX NOS. add 2 words plus 1/- for registration and forwarding replies which should be addressed c/o, "The Architect & Building News," Dorset House, Stamford Street, London, S.E.1.

PRESS DAY Monday. Remittances payable to Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.

No responsibility accepted for errors.

ARCHITECTURAL APPOINTMENTS VACANT

SLATER, UREN & PIKE require competent assistants.—Apply by letter to 29, Gower St., W.C.1, stating experience and salary required. [8100

ASSISTANT architect required; salary £500 p.a. or thereabouts according to experience.—Apply, giving full particulars, to Frederick Gibberd, 8, Percy St., W.1. [8077

JUNIOR architectural assistant required; salary £350/£400 p.a. or according to experience.—Apply, giving full particulars, to Frederick Gibberd, 8, Percy St., W.1. [8076

SANDON & HARDING, Ipswich, require Junior Architectural Assistant, Inter. to Final standard. Good prospects. Give full particulars, including salary expected. [8082

ARCHITECTS with degree and with civil engineering inclinations are invited to send full particulars and in return will receive information about an attractive appointment.—Box 6287. [8096

ARCHITECTS' Co-Partnership require assistants for working drawings and detailed design. Salary according experience and qualifications.—Telephone Langham 5791 or write to 44, Charlotte Street, W.1. [8089

ARCHITECTURAL Assistant, qualified R.I.B.A. with experience in preparation of working drawings for, and supervising the erection of, Industrial Buildings.—Apply in writing to Ramsey, Murray & White, 32, Wigmore Street, W.1, for the attention of Mr. C. S. White. [8090

APPLICATIONS are invited for the following vacancies which exist in the office of the Architect, Eastern Region, British Railways, at King's Cross Station: 1 Assistant Architect, salary up to £757/10 per annum; 2 Assistant Architects, salary up to £649 per annum; 4 Architectural Assistants, salary up to £600 per annum. Applicants for positions as Assistant Archigect should be qualified and have had practical experience. Applicants for positions as Architectural Assistant should be of Intermediate R.I.B.A. standard with practical experience. Free residential railway facilities within specified limits and other reduced rate rail travelling facilities after qualifying period of service. Five-day week and canteen facilities.—Apply in writing giving full particulars as to age, experience and qualifications, etc., to the Civil Engineer, Eastern Region, British Railways, King's Cross Station, N.1. [8088

ARCHITECTURAL APPOINTMENTS VACANT—contd.

ARCHITECTURAL Staff required for wide range of work in Architects' Department of George Wimpey & Co., Ltd., Hammersmith. Salaries £500-£900 per annum dependent upon experience and ability. Appointments will be on a permanent basis.—Applications, giving brief particulars of experience and qualifications, to be addressed to Staff Architect, George Wimpey & Co., Ltd., 27, Hammersmith Grove, W.6. [8081

SITUATIONS VACANT

BUILDING and Architectural Draughtsman required for work in Kingston area. Estate Developers office, on housing and estate work generally.—Details, age, salary, etc., Box 6283. [8085

ARCHITECT'S Secretary, experienced, for small office Bedford Square area; shorthand, typing, bookkeeping and general office duties; good salary and conditions; temporary application considered.—Write with full particulars to Box 6285. [8093

DRAUGHTSMAN, Shopfitting, etc., for Capetown. Fully experienced, capable interviewing architects, clients; salary £74/84 per month, including S.L. allowance; three-year agreement; passage paid.—Write, enclosing copy drawings, references, etc., to Box 6284. [8092

SERVICES OFFERED

REINFORCEMENT Service offered to authorities, architects, contractors. Our Dept., of DESIGN for detailed working drawings

AND bending lists. We can also

SUPPLY mild steel bars, high-tensile fabrics.

CO-LD bending and fixing—accurate work to any specification. Quotations submitted without obligation.—Reinforcement Design & Supply Co., 120, Cheviot Rd., W. Norwood, S.E.27. Gip. 1356. [0144

PROFESSIONAL Drawing Office Service. Plans prepared and submitted. Enquiries invited from builders and others, London and S.E.—H. & D. Plans, 89a, High St., Welling, Kent. Bexleyheath 2171. [8069

PLANT FOR SALE

CRANE gantry for sale with 6-ton Coles electric hoist block, 400/3/50, first-class condition.—William R. Selwood, Ltd., Chandler's Ford, Hants. Tel. 2275. [8046

FOR sale, 4 Aveling-Barford 12-ton 9 cu yd diesel driven shuttle dumpers, reversible steering, new 1950.—Trevor Davies, Lodge Yard, Briton Ferry. Telephone 2166. [8083

MILLARS 10/7 concrete mixers, 5 on offer at £50 each; Millars roller pan mixer, £70; all in working order; lying at Darlington.—Details from Sanderson, Townend & Gilbert, 92, Bondgate, Darlington. [8101

DUMPERS for sale; Muir-Hill 10B diesel, 3 cu. yd., new 1950, electric start; Muir-Hill 10S petrol, 3 cu. yd., being overhauled; Benford ½-ton diesel, new and second-hand; G.F. ½-ton petrol, reconditioned.—William R. Selwood, Ltd., Chandler's Ford, Hants. Tel. 2275. [8047

FOR sale 9in Midsaw universal woodworker, motorized 480v d.c. comp. with many extras, liner Portasaw, No. 3 and No. 4, second-hand; Circulex 14in portable saw bench, with Villiers petrol engine, new; 10in and 15in Zyto saw benches, motorized, 400/3/50, new; unused 24in plain saw bench, with cast-iron top.—William R. Selwood, Ltd., Chandler's Ford, Hants. Tel. 2275. [8045

A 2-TON mobile crane of the very latest high-speed type now available for demonstration; it costs only £1,450 and travels at 12 m.p.h.; diesel fuel consumption cost barely 9d per hour; with a 1½ cu. yd. hydraulic grab it is the simplest, cheapest and most efficient way of handling loose materials in bulk; the ideal machine for loading and unloading railway trucks and road vehicles.—William R. Selwood, Ltd., Chandler's Ford, Hants. Tel. 2275. [8048

PLANT FOR HIRE

CHASESIDE mechanical shovels, Major type, by day, week or contract, with drivers; tipping lorries supplied if required with shovels.—Henry Froud, Ltd., Primrose Wharf, Tunnel Ave., Greenwich, S.E.10. Tel. Greenwich 0072-3. [0138

PRIVATE DRIVES AND ROADS

PRIVATE Drives, Forecourts, Roads, etc., resurfacing or new construction by Specialists. Tarmacadam, Tar-spraying, Chippings, Shingle, etc. Estimates free.—Stanley Lucas (Slough), Ltd., 16, Mackenzie St., Slough 21279. [0136

FOR SALE

ELECTRICITY meters, reconditioned, all types, quarterly credit and prepayment.—The Electric Meter Co., Dept. AN46, Castle Circus House, Torquay. [8021

FOR sale, International time recording machine, as new, master clock, relay cabinet, attendance time recorder, hooter, electric cable; cost £165; will accept £75.—Box 6297. [8091

ALL hardwood mouldings, plain and embossed, embossed ornaments and dowels; send for catalogue and to-day's lowest trade prices.—Dareve's Moulding Mills, Ltd., 60, Pownall Road, Dalston, E.8. Clissold 1543/4. [0142

8,000,000 Parker-Kalon self-tapping screws at greatly reduced prices, types A and Z, Nos. 6, 8 and 10, in countersunk, binding and round heads.—List from D. C. Woodberry, Engineers' Supplies, Treforest Estate, Glam. [7971

INSURANCE

PENSION Schemes arranged.
Please write for particulars to
E. J. SAXBY, Incorporated Insurance Broker, 37a, Carfax, Horsham, Sussex. Tel. 990. [7934

NISSEN HUTS, ETC.

RECONDITIONED ex-Army huts and manufactured buildings, timber asbestos, Nissen type, hall type, etc., all sizes and prices.—Write, call or telephone Universal Supplies (Belvedere), Ltd., Dept. 32, Crabtree Manorway, Belvedere, Kent. Tel. Erith 2948. [0143

COMPLETE factory building for sale at greatly reduced price: Pentad hangar; 187ft long × 123ft wide clear span × 28ft eaves × 40ft ridge, with sliding doors the whole width of each end, complete with all new galvanized corrugated sheets for the whole building, delivered your site; £5,950.—Box 6282. [8084

DEMOLITION

DEMOLITION AND CLEARANCE

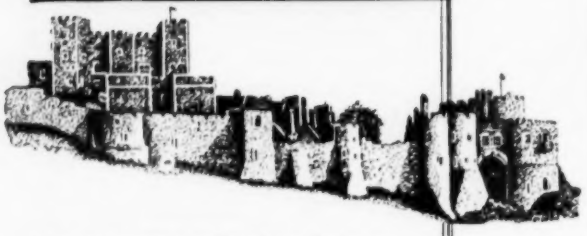
"WATCH IT COME DOWN"
282, BARING RD., LEE, S.E.12. TEL. LEE GREEN 7755.

By SYD BISHOP & SONS,
OLD PROPERTY BOUGHT FOR SALVAGE. [0139

MISCELLANEOUS

HIRE purchase facilities are available for the acquisition of contractors' plant through Gordon Kellow and Partners, London Agents for The Astley Industrial Trust, Ltd., 17, Victoria Street, London, S.W.1. Abbey 2931. [8058

Secure Foundations



The earliest castle on the cliff at Dover was made by King Harold (1066) of earthwork and timber. Stone walls and keep were built by Henry II, 1168—1186, an outer wall added 1220—1240. Thus the Castle took shape as we know it today, guardian of the gateway to England. It is Crown property, maintained by Ministry of Works and open to the public. Dover Castle had more than 70,000 visitors last year.

The Centuries-old Sign of Public Service

SUN INSURANCE OFFICE LTD · FOUNDED 1710 ·

Head Office: 63 Threadneedle Street, E.C.2.
Branches and Agencies throughout the World.

First impression sold : second now ready!

For ARCHITECTS, CONTRACTORS and all WHO BUILD

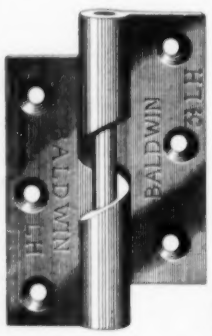
THE ARCHITECT AND THE LAW

by RICHARD BODY, Barrister-at-Law
with a Foreword by Rt. Hon. Sir DAVID ECCLES, Minister of Works

8s. 6d.

"... contains [matter] which every architect must ... know by heart if he is to avoid legal difficulties"—
Estates Gazette

From all book-sellers or from the publishers,
Institute of Registered Architects, 47, Victoria Street, S.W.1. **8s. 9d.** *post free*



S-S-SH!

... isn't it quiet?

Smooth, strong and silent—Baldwin's Cast Iron Rising Hinges are manufactured to the highest standards of quality and craftsmanship to give year after year of efficient, trouble-free service under all conditions

CAST IRON **RISING HINGES** BY
BALDWINS

Sole Manufacturers: BALDWIN, SON & CO. LTD., STOURPORT-ON-SEVERN
M-W.78

INDEX TO ADVERTISERS

Official Notices, Tenders, Auction, Legal and Miscellaneous Appointments on pages 30, 31 and 32

Adamite Co., Ltd., The ... 25
Arabol Manufacturing Co., Ltd., The ... 12

Baldwin, Son & Co., Ltd. ... 32
Baume & Co., Ltd. ... 24
Bratt Colbran, Ltd. ... 29
Briggs, Wm., & Sons, Ltd. ... 27
Bryce, White & Co., Ltd. ... 27

Cafferata & Co., Ltd. ... 2
Cellactite & British Uralite, Ltd. ... 3
Cement Marketing Co., Ltd., The ... 13
Clarke Ellard Engineering Co., Ltd. ... 28
Clement Bros. Haslemere, Ltd. ... 24
Cousins & Co. (M/C), Ltd. ... 26
Coverite (Asphalters), Ltd. ... 27

Destrol Sales, Ltd. ... 27
Dunlop & Ranken, Ltd. ... *Inside Front Cover*
Dussek Bitumen & Taroleum, Ltd. ... 8

Eastwoods Sales, Ltd. ... 5
Empire Stone Co., Ltd. ... 11
Engert & Rolfe, Ltd. ... 25

Finnish Lion Board ... 27
Franki Compressed Pile Co., Ltd., The ... 4

Gardner, J., & Co., Ltd. ... 26
Gas Council ... 6
General Electric Co., Ltd. The ... 8
Gibson, Arthur L., & Co., Ltd. ... 25
Gray, J. W., & Co., Ltd. ... 27
Gummers, Ltd. ... 18

Hall Harding, Ltd. ... 16
Harvey, G. A., & Co., Ltd. ... 16
Heal's Contracts, Ltd. ... 14
Hope, Henry, & Sons, Ltd. ... 21

Institute of Registered Architects ... 32

Ketton Portland Cement Co., Ltd., The ... 15
Kings Langley Engineering Co., Ltd. ... 28
Kinnear Shutters ... 25

Light Steelwork (1925), Ltd. ... 26
London Brick Co., Ltd. ... 19

Margolis, M. ... 27
Marley Tile Co., Ltd., The ... 23
Medway Buildings & Supplies, Ltd. ... 9
Midland Woodworking Co., Ltd., The ... 1
Molesey Sheet Metal Works ... 25
"Motor Transport" ... 29
Mullen & Lumsden, Ltd. ... 25

Nuralite Sales, Ltd. ... 3

Odoni, A. A., & Co., Ltd. ... 27
Orlit, Ltd. ... *Inside Back Cover*

"Royal Board" ... 26
Rudkin, S. O., & Co., Ltd. ... 25
Ruberoid Co., Ltd., The ... 17

Sankey, J. H., & Son, Ltd. ... *Outside Back Cover*
Sharp Bros. & Knight, Ltd. ... 7
Sommerfelds, Ltd. ... 14
Soundproof Construction ... 27
Spencer Lock & Co., Ltd. ... 26
Steel Radiators, Ltd. ... 20
Steven, A. & P., Ltd. ... 26
Sun Insurance Office, Ltd. ... 32
Synchronome Co., Ltd. The ... 12

True Flue, Ltd. ... 26
Turners Asbestos Cement Co., Ltd. ... 10

United Merchants, Ltd. ... 22

Vulcanite, Ltd. ... 18

Ward, Thos. W., Ltd. ... 15

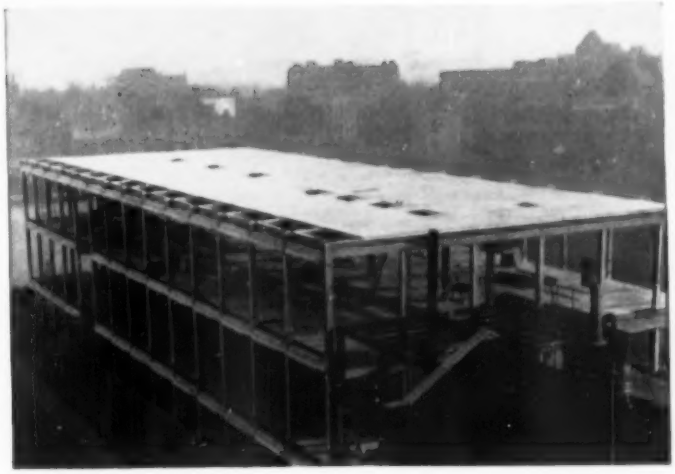
Printed in Great Britain for the publishers, ILIFFE AND SONS LTD., Dorset House, Stamford Street, London, S.E.1, by CORNWALL PRESS LTD., Paris Garden, Stamford Street, London, S.E.1.

The Orlit system of construction was chosen for London Hospital Research Laboratories

The framework, floors and roof of this fine, modern, permanent building, erected in eight weeks, is a typical example of the many structures now being supplied and erected by Orlit Ltd, and its licensees throughout the country, using the Orlit system of construction.

Architect to the London Hospital:
Norman Herbert Oatley, Esq., L.R.I.B.A.

Above: Front elevation showing framework of multi-storey precast structural units.



Right: Taken from above this photograph illustrates the floor and roof slabs.

The Orlit system can be readily applied to virtually any type of permanent building and is used extensively by leading contemporary architects. It is particularly suitable for factories, factory extensions, single and multi-storey administrative buildings. Considerable economies both in cost and erection times result from the use of precast structural units, and the System has many other advantages over steel or insitu concrete. As part of the Orlit service the preparation of schemes for structures, including foundation, is undertaken in conjunction with architects and engineers. In addition, Orlit Limited, will, if required, carry out foundation work as well as the erection of its own buildings.

ORLIT SYSTEM
OF REINFORCED CONCRETE

MCN 131

The Orlit Technical Folder, illustrated by detailed drawings and photographs of various types of Orlit buildings, will be sent on request to architects, engineers, surveyors and industrialists.

Area Licensees:
TARSLAG LTD., Tees Bridge, Stockton-on-Tees. Tel: 6355
ORLIT (Lancashire) LTD., 3 Brown Street, Manchester. Tel: Blackfriars 0718

ORLIT LTD. Colnbrook-By-Pass, Colnbrook, Slough, Bucks. Tel: Colnbrook 351

DIRECTIONS FOR GOOD BUILDING
SANKEY'S DOWN DRAUGHT PREVENTING POTS
BUCKBY FACING BRICKS
SANKEY'S SANITARY WARE
PYRUMA FIRE CEMENTS & REFRACTORY PRODUCTS
SANKEY'S ACID RESISTING CEMENT
SISALKRAFT REINFORCED WATERPROOF BUILDING PAPERS
CRANHAM TERRA COTTA PARTITION BLOCKS
GLOPANE COLD GALVANIZING
BEACH'S TUDOR FACING BRICKS
MELAC FIREPLACES & SURROUNDS
MOLER INSULATING BRICKS & BLOCKS
ROOFING CONTRACTS OF EVERY DESCRIPTION
CERABOS FLOOR TILES

Manufacturers, Distributors and Exporters of Building Materials

J. H. SANKEY & SON LTD.

(ESTABLISHED 1857)

ALDWYCH HOUSE, ALDWYCH, LONDON, W.C.2. Tel: HOLBORN 6949